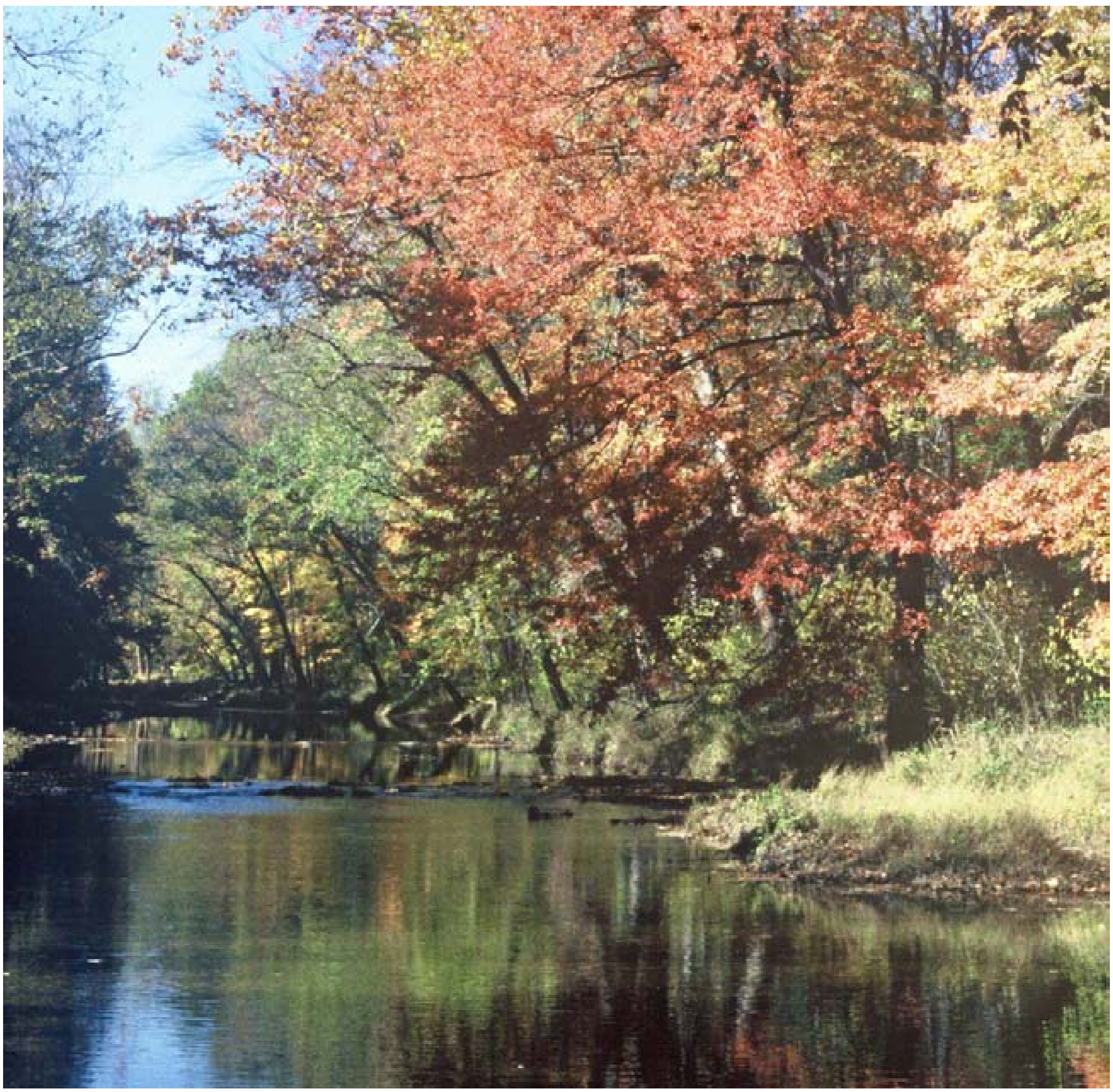
United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with West Virginia Agricultural and Forestry Experiment Station

Soil Survey of Morgan County, West Virginia



How To Use This Soil Survey

General Soil Map

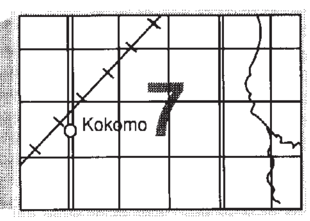
The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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.

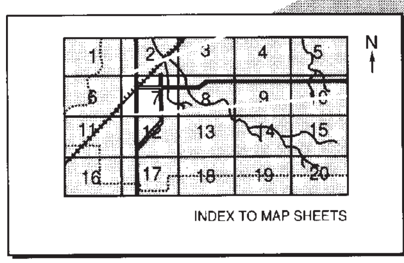
Detailed Soil Maps

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 turn to that sheet.

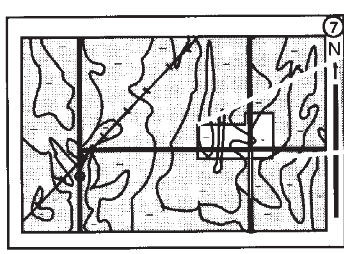


MAP SHEET



INDEX TO MAP SHEETS

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



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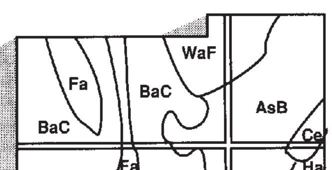

AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

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 1999. Soil names and descriptions were approved in 2003. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1999. This survey was made cooperatively by the Natural Resources Conservation Service and the West Virginia Agricultural and Forestry Experiment Station. The survey is part of the technical assistance furnished to the Eastern Panhandle Conservation District.

Cover: True to its name, Sleepy Creek meanders lazily throughout the length of Morgan County. Many of the rich alluvial soils along its banks are prime farmland.

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

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Issued December 2006

Foreword

This soil survey contains information that affects land use planning in this survey area. 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 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, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Ronald L. Hilliard
State Conservationist
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Soil Survey of Morgan County, West Virginia

By James W. Bell, soil survey project leader,
Natural Resources Conservation Service

United States Department of Agriculture,
Natural Resources Conservation Service,
in cooperation with
the West Virginia Agricultural and Forestry Experiment Station

Morgan County is in the eastern panhandle of West Virginia (fig. 1). It has an area of 147,000 acres, or about 230 square miles. The county is bounded on the north by the Potomac River, which separates it from Washington County and Allegany County, Maryland; on the west by the Potomac River, which separates it from Allegany County, Maryland; on the east by Berkeley County, West Virginia; and on the south by Hampshire County, West Virginia, and Frederick County, Virginia. Narrow valleys and steep, rugged mountains characterize the landscape of the county.

This soil survey updates the Morgan County subset of the survey of Hampshire, Mineral, and Morgan Counties, West Virginia, published in 1978 (USDA SCS 1978). It provides additional information and has a more recent aerial photobase.

General Nature of the County

This section provides general information about Morgan County. It describes settlement and population, farming, relief and drainage, climate, and water supply.

Settlement and Population

The warm, medicinal waters of Berkeley Springs were first used by Native Americans, who came to the springs from as far north as Canada to as far south as the Carolinas (West Virginia Division of Natural Resources n.d.). After the first Europeans arrived in the area in 1730, the word of the springs' curative powers spread throughout settlements in the East. In 1748, George Washington surveyed the area for Thomas Lord Fairfax, who had inherited all the land in the

Figure 1.—Location of Morgan County in West Virginia.

Potomac River watershed. The 16-year-old Washington noted in his diary, “March 18th, 1748, We this day called to see Ye Fam’d Warm Springs” (fig. 2).

Washington, a regular visitor to the springs, purchased property nearby shortly after Lord Fairfax, in 1776, conveyed the springs and 50 adjacent acres to the Colony of Virginia. Many prominent colonists bought property at the new resort, including seven members of the Continental Congress, three signers of the Declaration of Independence, and three signers of the United States Constitution. Hence, the reputation of the springs as the Nation’s first health resort became firmly established.

In 1776, the General Assembly of Virginia established the town of Bath, which is now known as Berkeley Springs, after the town in England famous for its baths. Although Bath remains the official municipal name, the United States Postal Service recognizes the town as Berkeley Springs.

Morgan County was formed in 1820 from parts of Berkeley and Hampshire Counties. It was named in honor of General Daniel Morgan, a Revolutionary War hero, who lived in Berkeley Springs (North 1998).

In 2000, the population of Morgan County was 14,943 and that of Berkeley Springs, the county seat and the largest town in the county, was 670 (Bureau of the Census n.d.). In recent years the county has experienced a significant influx of people from the urban centers to the east, and the county’s population is expected to continue to grow steadily.

Farming

In 1997, the county had 161 farms, averaging about 175 acres in size. Farmland totaled 28,180 acres, up from 21,793 acres in 1987 (Bureau of the Census 1989; USDA NASS 1999). About 41 percent of the farms in the county were operated on a

Figure 2.—“Ye Fam’d Warm Springs” at Berkeley Springs State Park. The public springhouse is on the left; the bathhouse is on the right.

full-time, commercial basis. About 12 percent of the county was cropland or pasture. The farms are mostly in the valleys and on broad ridgetops in the eastern half of the county. In 1997, total market value of all farm products sold in Morgan County, mainly beef, fruit, and Christmas trees, was $1,308,000.

Relief and Drainage

Morgan County lies completely within the Northern Appalachian Ridges and Valleys resource area (Austin 1965). The major landforms are a series of parallel ridges and valleys oriented from the southwest to the northeast. The Potomac River and its tributaries drain the county. The lowest elevation in the county is about 370 feet. It is in an area where Cherry Run empties into the Potomac River.

Seven major ridges form prominent features on the landscape in Morgan County. From east to west they are Short Mountain, Sleepy Creek Mountain, Warm Springs Ridge, Cacapon Mountain, Tonoloway Mountain, Sideling Hill, and Purslane Mountain. The highest elevation in the county is about 2,320 feet. It is on Cacapon Mountain.

The ridges have a cap of hard sandstone that is resistant to geologic weathering, and they are generally very steep and rugged. The mountaintops are narrow, and in some areas sandstone bedrock crops out to form scenic cliffs and overlooks. Relief from the valley floors to the ridgetops ranges from about 200 feet in areas on Warm Springs Ridge to about 1,300 feet in areas on Cacapon Mountain.

The valleys between the mountain ridges are underlain by shale and, to a lesser extent, limestone, which are relatively soft and easily eroded over geologic time. They are strongly dissected by intermittent and perennial streams. The drainageways form a trellis pattern, which is the typical drainage pattern in the Northern Appalachian Ridges and Valleys resource area. The valley ridgetops are generally broad and are gently sloping to moderately steep. Side slopes and nose slopes are generally steep or very steep. Relief averages about 200 feet in the valleys.

Climate

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

In winter, the average temperature is 31.9 degrees F and the average daily minimum temperature is 22.5 degrees. The lowest temperature on record, which occurred on January 21, 1985, is -26 degrees. In summer, the average temperature is 71.7 degrees and the average daily maximum temperature is 83.3 degrees. The highest recorded temperature, which occurred at Cacapon State Park on July 17, 1988, is 104 degrees; however, at nearby Martinsburg, which has a much longer climate record, the temperature reached 111 degrees on July 11, 1936.

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 38.66 inches. Of this, 25.28 inches, or about 65 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 5.04 inches on September 7, 1996. Thunderstorms occur on about 32 days each year, and most occur during the period ranging from May through August.

The average seasonal snowfall is 22.7 inches. The greatest snow depth at any one time during the period of record was 32 inches. The heaviest 1-day snowfall on record was more than 26.5 inches on February 12, 1983. On the average, 23 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 80 percent in winter and 90 percent in summer. The sun shines about 60 percent of the time possible in summer and 40 percent in winter. The prevailing wind is quite variable, depending upon location and local topography. In general, it is from the south in most months but is from the northwest in the winter. Average windspeed is highest, 10 miles per hour, during the period ranging from January through April.

Water Supply

Most parts of the county have an adequate water supply from wells, springs, or streams. Drilled wells commonly supply domestic water systems in rural areas. Sources for public water systems are springs in Berkeley Springs State Park and the Potomac River.

Farm ponds commonly supply water for livestock and for fire protection in rural areas. Springs are abundant in the county; they are most numerous and most productive in areas of limestone. The primary source of water for most domestic and public water supply systems is ground water. The principal sources of ground water in the county are two kinds of rock—carbonate rocks, mostly limestone and dolomite, and noncarbonate rocks, mostly shale.

In areas of limestone bedrock, the supply of ground water is generally abundant, but depth to good water-bearing strata is variable and water levels are subject to rapid, wide ranges of seasonal fluctuations. Wells in these areas are, on average, about 150 to 200 feet deep, but some wells are much deeper. The ground water obtained from these areas of limestone generally is very hard. It is high in dissolved calcium and magnesium but generally low in iron. Ground water in areas of limestone is especially vulnerable to contamination from poor land use practices. Precautions are needed to prevent pollutants from contaminating ground water through sinkholes and solution channels in the limestone bedrock.

Yields of ground water in areas of shale bedrock generally are less than those in areas of limestone bedrock, but the depth and yield of ground water in areas of shale bedrock generally are dependable. Most wells in the areas of shale are 100 to 150 feet deep. Ground water generally is hard and commonly high in iron and, in places, high in sulfur. A common practice is to build farm ponds in areas of shale bedrock by constructing small dams across natural drainageways.

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 (fig. 3). After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic

Figure 3.—A soil scientist records the color of a soil by comparing it to a standard Munsell soil color chart.

classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

General Soil Map Units

The general soil map in this publication 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 or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. 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.

1. Sideling-Buchanan

Gently sloping to steep, moderately well drained, very deep soils that have a medium textured subsoil; formed in materials weathered mainly from acid sandstone and shale; on uplands

Setting

These soils are mainly on concave to smooth toeslopes, footslopes, lower backslopes, and benches of Sleepy Creek Mountain, Warm Springs Ridge, Cacapon Mountain, Sideling Hill Mountain, and Purslane Mountain. The surface of these soils is often covered with stones and boulders.

Composition

Extent of the map unit in the county: 14 percent
Extent of the components in the map unit:
Sideling and similar soils—58 percent
Buchanan and similar soils—37 percent
Minor soils—5 percent (including the somewhat poorly drained Clearbrook and Cavode soils and the poorly drained Andover and Brinkerton soils)

Soil Characteristics

Sideling
Surface layer: Organic duff derived from hardwood leaf litter underlain by very dark grayish brown gravelly loam
Subsurface layer: Dark yellowish brown gravelly loam
Subsoil: Upper part—yellowish brown gravelly loam; next part—yellowish brown gravelly clay loam that has reddish brown mottles; next part—strong brown gravelly clay that has light gray and reddish brown mottles; lower part—strong brown very cobbly clay loam that has light gray and yellowish red mottles

Depth class: Very deep
Drainage class: Moderately well drained
Depth to the seasonal high water table: 2.5 to 3.5 feet
Slope: 3 to 35 percent
Parent material: Material weathered from acid sandstone and shale

Buchanan
Surface layer: Organic duff derived from hardwood leaf litter underlain by very dark gray loam
Subsurface layer: Light yellowish brown loam
Subsoil: Upper part—brownish yellow gravelly loam; next part—light yellowish brown gravelly loam that has strong brown mottles; next part—strong brown gravelly loam mottled in shades of red, brown, and gray; lower part—strong brown, firm and brittle gravelly loam mottled in shades of yellow, gray, and red
Depth class: Very deep
Drainage class: Moderately well drained
Depth to the seasonal high water table: 1.5 to 3.0 feet
Slope: 3 to 35 percent
Parent material: Material weathered from acid sandstone and shale

Use and Management

Most areas of these soils are wooded. A few small areas have been cleared and are used for pasture and hay or as homesites.

Cropland
In most areas these soils are not suited to crops. The extremely stony surface is the main limitation.

Pasture and Hayland
In most areas these soils are not suited to hay and are difficult to manage for pasture. The stony surface is the main limitation.

Woodland
The potential productivity for trees is moderately high. The seasonal high water table and the stones on the surface are limitations affecting logging operations.

Community Development
The seasonal high water table and the extremely stony surface are the main limitations affecting community development.

2. Calvin-Klinesville

Gently sloping to very steep, well drained and somewhat excessively drained, moderately deep and shallow soils that have a medium textured subsoil; formed in materials weathered from reddish brown sandstone and shale; on uplands

Setting

These soils are mainly on convex ridges and hillsides. They are in three broad bands that extend north to south through the county. These bands are roughly parallel to Sleepy Creek Mountain and Sideling Hill Mountain.

Composition

Extent of the map unit in the county: 21 percent
Extent of the components in the map unit:
Calvin and similar soils: 55 percent
Klinesville and similar soils: 23 percent

Minor soils: 22 percent (including the moderately well drained Hustontown soils and the well drained Berks soils)

Soil Characteristics

Calvin
Surface layer: Dark reddish brown channery loam
Subsoil: Reddish brown channery and very channery loam
Depth class: Moderately deep
Drainage class: Well drained
Depth to the seasonal high water table: More than 6 feet
Slope: 3 to 65 percent
Parent material: Material weathered from reddish brown, acid, fine grained sandstone and shale

Klinesville
Surface layer: Dark reddish brown channery loam
Subsurface layer: Reddish brown very channery loam
Subsoil: Reddish brown very channery loam
Depth class: Shallow
Drainage class: Somewhat excessively drained
Depth to the seasonal high water table: More than 6 feet
Slope: 3 to 65 percent
Parent material: Material weathered from reddish brown, acid, fine grained sandstone and shale

Use and Management

Most of the gently sloping and strongly sloping areas of these soils have been cleared and are used for pasture, hay, or orchards (fig. 4). Cultivated crops are grown in a few areas. Almost all of the moderately steep to very steep hillsides are forested. The woodland consists mainly of oak-hickory and Virginia pine-pitch pine forest types.

Cropland
Droughtiness and the slope are the main limitations affecting crop production.

Pasture and Hayland
Establishing and maintaining a healthy cover of sod and preventing overgrazing are major management concerns in pastured areas. The droughtiness limits forage production in midsummer.

Woodland
The potential productivity for trees is moderate or moderately high. Erosion is a hazard affecting logging operations.

Community Development
The depth to bedrock and the slope are the main limitations affecting community development.

3. Hazleton-Dekalb

Gently sloping to very steep, somewhat excessively drained and well drained soils that have a medium textured or coarse textured subsoil; formed in material weathered mainly from acid sandstone; on uplands

Setting

These soils are on ridgetops and side slopes of Third Hill Mountain, Sleepy Creek Mountain, Cacapon Mountain, Sideling Hill, and Purslane Mountain. Slopes range from 3 to 65 percent.

Figure 4.—An orchardist prepares the soil for planting ground cover after planting apple trees in an area of Calvin-Klinesville channery loams, 8 to 15 percent slopes, which is in the Calvin-Klinesville general soil map unit.

Composition

Extent of the map unit in the county: 10 percent
Extent of the components in the map unit:
Hazleton and similar soils: 46 percent
Dekalb and similar soils: 30 percent
Minor components: 24 percent (including the well drained Lehew soils and areas of rock outcrop)

Soil Characteristics

Hazleton
Surface layer: Extremely stony, organic duff derived from hardwood leaf litter underlain by very dark brown channery loam
Subsurface layer: Dark yellowish brown channery sandy loam
Subsoil: Upper part—yellowish brown very channery loam; next part—strong brown very channery loam; lower part—strong brown very channery sandy loam
Depth class: Very deep
Drainage class: Well drained

Depth to the seasonal high water table: More than 6 feet
Slope: 15 to 65 percent
Parent material: Material weathered from acid sandstone and shale

Dekalb
Surface layer: Extremely stony, organic duff derived from hardwood leaf litter underlain by very dark brown channery sandy loam
Subsurface layer: Grayish brown very channery loamy sand
Subsoil: Yellowish brown very channery sandy loam underlain by yellowish brown extremely flaggy sandy loam
Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Slope: 3 to 65 percent
Depth to the seasonal water table: More than 6 feet
Parent material: Material weathered from acid sandstone and some interbedded shale

Use and Management

Most areas of these soils are forested. A few small areas are used as pasture. The woodland consists mainly of oak-hickory and Virginia pine-pitch pine forest types.

Cropland
Because of the slope and the stones on the surface, these soils are not suited to cultivated crops.

Pasture and Hayland
In most areas these soils are not suited to hay and are difficult to manage for pasture. The slope and the stones on the surface are the main limitations.

Woodland
The potential productivity for trees is moderate on south aspects of these soils and moderate or moderately high on north aspects. The slope is the main limitation affecting logging operations.

Community Development
In many areas these soils are not suited to community development because of the very steep slopes. The depth to bedrock is an additional limitation in areas of the Dekalb soils.

4. Murrill-Litz

Gently sloping to very steep, well drained, moderately deep and very deep soils that have a medium textured subsoil; formed in material weathered from sandstone, limestone, and limy shale; on uplands

Setting

These soils are mainly on the western slopes of Warm Springs Ridge, in the Sir Johns Run watershed, and on the eastern slopes of Tonoloway Ridge. They are on gently sloping and strongly sloping, convex ridges and valley sides and on steep and very steep, convex or slightly concave hillsides. Slopes range from 3 to 65 percent.

Composition

Extent of the map unit in the county: 3 percent
Extent of the components in the map unit:
Murrill and similar soils: 42 percent

Litz and similar soils: 36 percent
Minor components: 22 percent (including the well drained Caneyville, Blackthorn, and Opequon soils; the moderately well drained Clarksburg soils; and areas of rock outcrop)

Soil Characteristics

Murrill
Surface layer: Very dark gray loam
Subsurface layer: Brown loam
Subsoil: Upper part—yellowish brown gravelly loam; next part—strong brown gravelly loam; next part—strong brown gravelly sandy clay loam; lower part—yellowish red silty clay
Depth class: Very deep
Drainage class: Well drained
Depth to the seasonal high water table: More than 6 feet
Slope: 3 to 35 percent
Parent material: Material weathered from limestone mixed with some material weathered from sandstone and chert

Litz
Surface layer: Organic duff derived from hardwood leaf litter underlain by very dark grayish brown channery silt loam
Subsurface layer: Yellowish brown channery silt loam
Subsoil: Upper part—yellowish brown very channery silt loam; lower part—mixed yellowish brown very channery silt loam and strong brown very channery silty clay
Depth class: Moderately deep
Drainage class: Well drained
Depth to the seasonal high water table: More than 6 feet
Slope: 8 to 65 percent
Parent material: Material weathered from leached calcareous shale interbedded with widely spaced shaly limestone

Use and Management

Most areas of these soils are forested. The woodland consists of oak-hickory or mixed hardwood forest types. In some gently sloping to moderately steep areas, the soils have been cleared and are used for pasture or hay or as homesites.

Cropland
The nonstony, strongly sloping areas of these soils are suited to crops; however, erosion is a severe hazard in unprotected areas.

Pasture and Hayland
The strongly sloping and moderately steep soils that do not have surface stones are suited to pasture and hay. Other areas are suited only to pasture. In some areas the surface stones and the very steep slope make it difficult to manage pasture.

Woodland
In most areas the potential productivity for trees is moderately high.

Community Development
In many areas of these soils, the slope is a limitation affecting community development. The depth to bedrock is an additional limitation in areas of the Litz soils. In some areas solution channels in the limestone bedrock increase the hazard of ground water pollution if the soils are used as sites for septic tank absorption fields.

5. Monongahela-Philo-Combs-Holly

Nearly level to strongly sloping, well drained to very poorly drained, very deep soils that have a medium textured subsoil; formed in material washed from soils on uplands that are underlain mainly by mixed shale, sandstone, and limestone; on stream terraces and flood plains

Setting

These soils are mainly on flood plains and stream terraces along Sleepy Creek, the Potomac River, and the Cacapon River. Slopes range from 0 to 15 percent.

Composition

Extent of the map unit in the county: 10 percent
Extent of the components in the map unit:
Monongahela and similar soils: 27 percent
Philo and similar soils: 25 percent
Combs and similar soils: 15 percent
Holly and similar soils: 14 percent
Minor soils: 19 percent (including the poorly drained Dunning soils, the somewhat poorly drained Tygart soils, and the well drained Allegheny and Downsville soils)

Soil Characteristics

Monongahela
Surface layer: Dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown silt loam; next part—dark yellowish brown silt loam mottled in shades of brown and gray; next part—light olive brown, firm and brittle silt loam mottled in shades of brown and gray; lower part—yellowish brown clay loam that has gray mottles
Depth class: Very deep
Drainage class: Moderately well drained
Depth to the seasonal high water table: 1.5 to 3.0 feet
Slope: 0 to 15 percent
Parent material: Material washed from upland soils that are underlain mainly by acid shale and sandstone

Philo
Surface layer: Brown silt loam
Subsoil: Upper part—dark yellowish brown silt loam; next part—yellowish brown silt loam that has a few mottles in shades of brown and gray; lower part—brown silt loam that has common or many mottles in shades of brown and gray
Depth class: Very deep
Drainage class: Moderately well drained
Depth to the seasonal high water table: 1.5 to 3.0 feet
Slope: 0 to 3 percent
Parent material: Material washed from upland soils that are underlain mainly by acid shale and sandstone

Combs
Surface layer: Dark brown fine sandy loam
Subsoil: Upper part—dark yellowish brown fine sandy loam; lower part—dark brown to brown fine sandy loam
Depth class: Very deep

Drainage class: Well drained
Depth to the seasonal high water table: More than 6 feet
Slope: 0 to 3 percent
Parent material: Material washed from upland soils that are underlain by mixed shale, sandstone, and limestone

Holly

Surface layer: Dark grayish brown silt loam that has common, strong brown mottles
Subsoil: Upper part—grayish brown silt loam that has many strong brown mottles; next part—grayish brown loam that has many mottles in shades of yellowish brown; next part—light brownish gray sandy loam that has many mottles in shades of brown; lower part—brown gravelly sandy loam that has many mottles in shades of brown and red
Depth class: Very deep
Drainage class: Very poorly drained or poorly drained
Seasonal high water table: Within a depth of 0.5 foot
Slope: 0 to 3 percent
Parent material: Material washed from soils on uplands underlain by mixed shale, sandstone, and limestone

Use and Management

Most areas of the Monongahela, Philo, and Combs soils have been cleared and are used for cultivated crops, hay, or pasture (fig. 5). Most areas of the Holly soils are in wooded wetlands.

Figure 5.—An area of the Monongahela-Philo-Combs-Holly general soil map unit along Sleepy Creek used for corn production. The soil is Monongahela silt loam, 3 to 8 percent slopes.

Cropland

The Monongahela, Philo, and Combs soils are well suited to crop production. In most areas these soils are prime farmland. Occasional flooding may damage crops in some areas. If drained, Holly soils are suited to crop production.

Pasture and Hayland

The Monongahela, Philo, and Combs soils are well suited to pasture and hay. The Philo and Holly soils are better suited to grasses than to legumes because of the wetness.

Woodland

Potential productivity for trees is moderately high. In some areas of the Philo and Holly soils, the seasonal wetness is a limitation affecting logging operations.

Community Development

The seasonal wetness is the main limitation affecting community development in areas of the Monongahela soils. Philo, Combs, and Holly soils are not suited to community development because flooding is a hazard.

6. Schaffenaker-Vanderlip

Gently sloping to very steep, somewhat excessively drained, moderately deep and very deep soils that have a coarse textured subsoil; formed in material weathered from sandstone; on uplands

Setting

These soils are on Warm Springs Ridge. Slopes range from 3 to 65 percent.

Composition

Extent of the map unit in the county: 1 percent
Extent of the components in the map unit:
Schaffenaker and similar soils: 38 percent
Vanderlip and similar soils: 22 percent
Minor components: 40 percent (including the somewhat excessively drained Dekalb soils, the well drained Hazleton soils, areas of rock outcrop, and sandstone quarries)

Soil Characteristics

Schaffenaker

Surface layer: Organic duff derived from hardwood leaf litter underlain by very dark brown loamy sand
Subsurface: Brown loamy sand
Subsoil: Yellowish brown gravelly loamy sand
Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Depth to the seasonal high water table: More than 6 feet
Slope: 3 to 65 percent
Parent material: Material weathered from sandstone

Vanderlip

Surface layer: Organic duff derived from hardwood leaf litter underlain by dark brown loamy sand
Subsurface layer: Dark yellowish brown gravelly loamy sand
Subsoil: Upper part—yellowish brown very cobbly loamy sand; next part—yellowish brown sand; next part—brownish yellow sand that has thin bands of strong brown

loamy sand; lower part—very pale brown very bouldery sand that has thin bands of strong brown loamy sand

Depth class: Very deep
Drainage class: Somewhat excessively drained
Depth to the seasonal high water table: More than 6 feet
Slope: 15 to 65 percent
Parent material: Material weathered from sandstone

Use and Management

Most areas of this unit are in mixed hardwood forests. Some have been used as homesites. Others are located within Cacapon State Park and are used for recreational activities.

Cropland

These soils are not suited to cultivated crops. Droughtiness, the slope, and boulders on the surface are the main limitations.

Pasture and Hayland

These soils are not suited to hay and are difficult to manage for pasture. The slope and the surface boulders impede the operation of farm equipment. In midsummer the droughtiness limits production of forage.

Woodland

The potential productivity for trees is moderately high. In some areas the slope and the surface boulders are limitations affecting logging equipment.

Community Development

The slope and depth to bedrock are the main limitations affecting community development. The soils generally are unsuitable as sites for septic tank absorption fields because permeability is rapid and the effluent may not be adequately treated before it reaches the ground water.

7. Udorthents-Urban Land

Areas of Urban land and very shallow to very deep, nearly level to very steep, variably drained soils that are loamy or sandy, depending on the parent material; in diverse landscape positions

Setting

This map unit consists of urban areas and areas where the landscape has been altered for community development. It is mostly in the town of Berkeley Springs and along the U.S. Route 522 corridor.

Composition

Extent of the map unit in the county: 1 percent
Extent of the components in the map unit:
Udorthents: 77 percent
Urban land: 16 percent
Minor soils: 7 percent (including the very deep Philo soils, the moderately deep Berks soils, and the shallow Weikert soils)

Component Characteristics

Udorthents

These soils, commonly referred to as fill material, are in nearly level to very steep areas that have been drastically disturbed by excavating, grading, filling, or a combination of these practices. The surface layer of these soils ranges from sandy loam to clay that has a wide range in size, amount, and kind of rock fragments. Generally, the soils derived from shale are loamy or clayey in texture and the soils derived from sandstone are sandy in texture.

Urban land

The Urban land consists of areas where asphalt, concrete, or other impervious material covers at least 90 percent of the land surface.

Use and Management

This map unit is used for industrial, commercial, residential, and recreational development. Most areas of this map unit have public utilities.

8. Weikert-Berks

Nearly level to very steep, somewhat excessively drained and well drained, shallow and moderately deep soils that have a medium textured subsoil; formed in material weathered from acid shale; on uplands

Setting

These soils generally are on upland ridges, nose slopes, and side slopes that have deeply dissected drainageways. They are scattered throughout the county. Slopes range from 3 to 70 percent.

Composition

Extent of the map unit in the county: 40 percent
Extent of the components in the map unit:
- Weikert soils: 43 percent
- Berks soils: 34 percent
- Minor components: 23 percent (including the excessively drained Rushtown soils, the somewhat excessively drained Rough soils, the moderately well drained Ernest soils, the somewhat poorly drained Clearbrook soils, and areas of rock outcrop)

Soil Characteristics

Weikert
Surface layer: Very dark grayish brown very channery silt loam
Subsoil: Yellowish brown very channery silt loam
Depth class: Shallow
Drainage class: Somewhat excessively drained
Depth to the seasonal high water table: More than 6 feet
Parent material: Soft, rippable, acid shale

Berks
Surface layer: Brown channery silt loam
Subsoil: Upper part—yellowish brown channery silt loam; lower part—yellowish brown and strong brown very channery silt loam
Depth class: Moderately deep
Drainage class: Well drained
Depth to the seasonal high water table: More than 6 feet
Parent material: Soft, rippable, acid shale

Use and Management

Most of the broad ridgetops have been cleared and are used for pasture, hay, or cultivated crops or as sites for community development. Many areas are forested. A few small areas are used for orchards. The steep and very steep side slopes are generally forested. Woodland consists of oak-hickory and Virginia pine-pitch pine forest types.

Cropland

In the gently sloping and strongly sloping areas, these soils are generally suited to cropland, but production generally is low. Droughtiness and low natural fertility are the main limitations.

Pasture and Hayland

These soils are suited to pasture and hay. The droughtiness limits forage production in midsummer.

Woodland

Potential productivity for trees is moderate in most areas of these soils. On tree plantations, especially on south-facing slopes, the droughtiness and the low natural fertility result in a moderate seedling mortality rate.

Community Development

The depth to bedrock and the slope are the main limitations affecting community development.

Detailed Soil Map Units

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. 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, rock fragments on the soil surface, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Monongahela silt loam, 3 to 8 percent slopes, is a phase of the Monongahela series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes. 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. Weikert-Berks channery silt loams, 8 to 15 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. The map unit Quarry, sandstone, is an example.

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.

AgB—Allegheny loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, slightly convex stream terraces

Composition

Allegheny soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsoil:
8 to 34 inches—yellowish brown silt loam
34 to 42 inches—strong brown loam

Underlying material:
42 to 65 inches—strong brown gravelly loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:
• The moderately well drained Monongahela soils

- The somewhat poorly drained Tygart soils
- Small areas of Combs soils, which are subject to occasional flooding
- Small areas of the moderately deep Berks soils

Similar soils:
- Downsville soils, which have more gravel throughout than the Allegheny soil
- A few areas of nearly level or strongly sloping soils

Use and Management

Uses: Most areas of this Allegheny soil are wooded. Some have been cleared and are used for crops or for hay and pasture. Other areas are used as homesites.

Cropland
Suitability: Suited
Management concerns:
- In unprotected areas erosion is a moderate hazard.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Designing fertilizer and manure applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate hazard if pastures are overgrazed and the sod is removed.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: High
Management concerns:
- Because this soil is soft when wet, use of logging equipment during wet periods will result in excessive rutting.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Equipment should be used only when the soil is relatively dry or has an adequate snow cover.
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The restricted permeability may limit the proper functioning of septic tank absorption fields.
- Erosion is a moderate hazard on construction sites.

Management measures:
- Increasing the size of the absorption area and backfilling with gravel help to compensate for the restricted permeability.

- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

AgC—Allegheny loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, slightly convex stream terraces

Composition

Allegheny soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 7 inches—brown loam

Subsoil:
7 to 33 inches—yellowish brown silt loam
33 to 41 inches—strong brown loam

Underlying material:
41 to 65 inches—strong brown gravelly loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately well drained Monongahela soils
- Small areas of the moderately deep Berks soils

Similar soils:
- Downsville soils, which have more gravel throughout
- A few areas of soils that are 40 to 60 inches deep over shale bedrock
- A few areas of gently sloping to moderately steep soils

Use and Management

Uses: Most areas of this Allegheny soil are wooded. Some have been cleared and are used for crops or for hay and pasture. Other areas are used as homesites.

Cropland
Suitability: Suited
Management concerns:
- In unprotected areas erosion is a severe hazard.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Designing fertilizer and manure applications to meet crop nutrient needs, splitting fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe hazard if pastures are overgrazed and the sod is removed.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: High
Management concerns:
- Because this soil is soft when wet, use of logging equipment during wet periods will result in excessive rutting.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Equipment should be used only when the soil is relatively dry or has an adequate snow cover.
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The slope is a major limitation affecting most urban uses.
- The restricted permeability may limit the proper functioning of septic tank absorption fields.
- Erosion is a severe hazard on construction sites.

Management measures:
- Increasing the size of the absorption area and backfilling with gravel help to compensate for restricted permeability.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

AnB—Andover gravelly loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, concave toeslopes; mainly along the eastern side of Cacapon Mountain
Note: Seepy spots and springs common in some areas

Composition

Andover soil and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Surface layer:
0 to 8 inches—dark grayish brown gravelly loam that has gray and yellowish brown redoximorphic features

Subsoil:
8 to 14 inches—gray gravelly loam with light gray, very dark grayish brown, and yellowish brown redoximorphic features
14 to 19 inches—grayish brown gravelly clay loam that has light brownish gray and yellowish brown redoximorphic features
19 to 46 inches—grayish brown, very firm and brittle gravelly clay loam that has light brownish gray, strong brown, and gray redoximorphic features

Underlying material:
46 to 65 inches—brown gravelly sandy clay loam that has light gray and dark yellowish brown redoximorphic features

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Slow (0.06 to 0.2 inch per hour)
Available water capacity: Low
Seasonal high water table: Within a depth of 0.5 foot
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid throughout (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:
- The moderately well drained Buchanan soils
- Small areas of the poorly drained Melvin soils and moderately well drained Lindside soils on flood plains
- Small areas of the moderately well drained Sideling soils

Similar soils:
- The poorly drained Brinkerton soils, which are more silty throughout than the Andover soil
- Somewhat poorly drained soils
- Soils that have a stony surface
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of this Andover soil have been cleared and are used as pasture. Some are wooded. Many areas that have not been drained are used as wetlands. A Federal permit may be required before these areas can be disturbed.

Cropland

Suitability: Poorly suited because of the seasonal high water table and the slow permeability; however, crops can be grown if the soil has been adequately drained.

Management concerns:
- The seasonal wetness may delay tilling and planting in spring.
- Tilling and harvesting when the soil is wet may cause compaction and deterioration of tilth.
- In unprotected areas erosion is a moderate hazard.

Management measures:
- Minimizing tillage and tilling and harvesting at the proper soil moisture content help to prevent excessive compaction and to maintain tilth.
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Grazing during wet periods results in surface compaction, poor tilth, and damage to the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Hay and pasture species that can withstand the seasonal wetness should be selected for seeding.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: High for water-tolerant species

Management concerns:
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some trees and result in a high seedling mortality rate and a severe hazard of windthrow.
- Competition from undesirable plants may slow the growth of planted tree seedlings.

Management measures:
- The tree species that can withstand the seasonal wetness should be selected for planting.

- Harvest methods that do not leave the remaining trees widely spaced minimize the windthrow hazard.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The seasonal high water table and ponding are severe limitations affecting building site development and local roads and streets.
- The seasonal high water table limits excavation and trafficability and may delay construction activities in winter and spring.
- The seasonal high water table, the ponding, and the slow permeability are severe limitations on sites for septic tank absorption fields.
- Erosion is a moderate hazard on construction sites.

Management measures:
- A better suited soil should be considered as a site for septic tank absorption fields.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 4w
Prime farmland: No
Hydric soil: Yes

Ba—Basher fine sandy loam

Setting

Landscape position: Nearly level flood plains; along Middle Fork of Sleepy Creek; in the southeastern part of the county

Composition

Basher soil and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

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

Subsoil:
8 to 22 inches—reddish brown loam

Underlying material:
22 to 34 inches—variegated reddish brown and yellowish red sandy loam that has reddish gray redoximorphic features
34 to 46 inches—reddish brown loam that has reddish gray and yellowish red redoximorphic features
46 to 65 inches—gray gravelly sandy loam that has light brown and reddish yellow redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 1.5 to 2.0 feet

Flooding: Frequency—occasional (5 to 50 percent chance of flooding in any year); duration—very brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0) in the surface layer and subsoil and very strongly acid to slightly acid (pH 4.5 to 6.5) in the underlying material
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:
- The well drained Pope soils
- The moderately well drained Hustontown soils on small colluvial footslopes
- The poorly drained Brinkerton soils on small colluvial toeslopes
- The poorly drained Holly soils
- The poorly drained Melvin soils

Similar soils:
- Soils that are gravelly throughout
- Soils that have a surface layer of silt loam
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Basher soil are used for hay and pasture. Some are used for cultivated crops. A few are used as woodland.

Cropland
Suitability: Suited
Management concerns:
- This soil can be cropped year after year if it is properly protected.
- The flooding may occasionally damage crops and delay field operations.
- The seasonal wetness may delay tilling and planting in spring.
- In many areas this soil is subject to streambank erosion.

Management measures:
- Conservation tillage, a crop rotation that includes hay, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving a border of trees along streams helps to prevent streambank erosion and to protect water quality.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.
- Debris may be deposited in pastured areas if the soil is flooded.
- Grazing during wet periods may damage the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high
Management concerns:
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- The tree species that can withstand the seasonal wetness should be selected for planting.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.
- The addition of roadfill and gravel is needed on sites for year-round logging roads.

Community Development

Management concerns:
- Because of the flooding and the wetness, this soil is not suited to building site development and septic tank absorption fields.
- Because of the flooding and the wetness, this soil is severely limited as a site for local roads and streets.
- Excavations are unstable and are subject to caving.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on raised fill material and installing a drainage system help to overcome the limitations.
- Trench walls should be reinforced to prevent caving.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

BbC—Berks channery loam, 3 to 15 percent slopes, very stony

Setting

Landscape position: Gently sloping and strongly sloping, convex ridges and hilltops; mostly along the eastern and western bases of Cacapon Mountain

Composition

Berks soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 1 inch—organic duff from highly decomposed hardwood leaf litter
1 to 3 inches—very dark grayish brown channery loam

Subsurface layer:
3 to 4 inches—grayish brown channery loam

Subsoil:
4 to 6 inches—yellowish brown channery loam
6 to 21 inches—strong brown very channery loam

Underlying material:
21 to 24 inches—strong brown extremely channery loam

Bedrock:
24 inches—reddish brown and brownish yellow, fractured shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate or severe
Percentage of the surface covered by rock fragments: 1 to 3 percent covered with stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5) throughout
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Fractured shale; in places interbedded with fine grained sandstone; mainly members of the Clinton Formation

Minor Components

Dissimilar inclusions:
- The Sideling soils that are very deep to bedrock
- The Hazleton soils that are deep or very deep and have more sand in the fine-earth fraction than the Berks soil
- Moderately well drained soils
- Areas of rock outcrop
- Rubbly areas that have more than 15 percent of their surface covered with stones and boulders

Similar soils:
- The moderately deep Dekalb soils that have more sand in the fine-earth fraction
- The moderately deep Calvin soils that have a reddish brown subsoil
- The shallow Weikert soils
- Soils with slopes of less than 3 percent or more than 15 percent

Use and Management

Uses: Almost all areas of this Berks soil are wooded. A few are used as homesites.

Cropland
Suitability: Not suited
Management concerns:
- Because of the stones on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; limited suitability for pasture
Management concerns:
- The stones on the soil surface restrict the operation of most farm equipment.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate or severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The stones, the depth to bedrock, and the slope are the main limitations affecting community development.
- The depth to bedrock and the slope are limitations on sites for dwellings, especially dwellings with basements.
- The depth to bedrock is a limitation on sites for septic tank absorption fields.
- Erosion on construction sites is a moderate or severe hazard.

Management measures:
- In most areas, the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Selecting areas of the deepest included soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6s
Prime farmland: No
Hydric soil: No

BbE—Berks channery loam, 15 to 35 percent slopes, very stony

Setting

Landscape position: Moderately steep and steep, convex shoulder slopes and hillsides; mostly along the eastern and western bases of Cacapon Mountain

Composition

Berks soil and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Surface layer:
0 to 1 inch—organic duff from highly decomposed hardwood leaf litter
1 to 3 inches—very dark grayish brown channery loam

Subsurface layer:
3 to 4 inches—grayish brown channery loam

Subsoil:
4 to 6 inches—yellowish brown channery loam
6 to 21 inches—strong brown very channery loam

Underlying material:
21 to 24 inches—strong brown extremely channery loam

Bedrock:
24 inches—reddish brown and brownish yellow, fractured shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe or very severe
Percentage of the surface covered by rock fragments: 1 to 3 percent covered with stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5) throughout
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Fractured shale; interbedded with fine grained sandstone in places; mainly members of the Clinton Formation

Minor Components

Dissimilar inclusions:
- The Sideling soils that are very deep to bedrock
- The Hazleton soils that are deep or very deep and have more sand in the fine-earth fraction than the Berks soil
- Areas of rock outcrop
- Rubbly areas that have more than 15 percent of their surface covered with stones and boulders

Similar soils:
- The moderately deep Dekalb soils that have more sand in the fine-earth fraction than the Berks soil
- The moderately deep Calvin soils that are reddish brown in the subsoil
- The shallow Weikert soils
- Soils with slope of less than 15 percent or more than 35 percent

Use and Management

Uses: Almost all areas of this Berks soil are wooded. A few are used as homesites.

Cropland
Suitability: Not suited
Management concerns:
- Because of the stones on the soil surface and the steep slopes, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- The stones on the soil surface and the slope restrict the operation of most farm equipment.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Seedling mortality may be a problem on south aspects due to droughtiness during the summer months.

Management measures:
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour and seeding the logging roads, skid trails, and log landings after logging is completed help to control erosion.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Planting should be timed so that tree seedlings can take full advantage of spring rains.

Community Development
Management concerns:
- The steep slopes, the stones on the soil surface, and the depth to bedrock are the main limitations affecting community development.
- The slope is a severe limitation on building sites.
- The depth to bedrock is a limitation affecting building site development, especially on sites for buildings with basements.
- The depth to bedrock and the slope are severe limitations on sites for septic tank absorption fields.

- The slope is a severe limitation on sites for roads and streets.
- Erosion is a severe hazard on construction sites.

Management measures:

- In most areas the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- Buildings should be designed so that they conform to the natural slope of the land. Extensive land shaping is necessary in most areas.
- Selecting areas of the deepest included soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock and the slope.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

BcD—Berks-Calvin channery loams, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex, dissected uplands; mainly in the Sleepy Creek drainage area

Composition

Berks soil and similar soils: 45 percent
Calvin soil and similar soils: 40 percent
Dissimilar inclusions: 15 percent

Typical Profile

Berks
Surface layer:
0 to 5 inches—brown channery loam

Subsoil:
5 to 10 inches—brown channery loam
10 to 19 inches—yellowish brown and strong brown very channery loam

Underlying material:
19 to 23 inches—strong brown and yellowish brown extremely channery loam

Bedrock:
23 inches—yellowish brown, fractured shale

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Soil Properties and Qualities

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- Small areas of the moderately well drained Philo soils along narrow, intermittent drainageways
- The somewhat poorly drained Clearbrook soils on concave head slopes
- The moderately well drained Buchanan and Hustontown soils on footslopes
- The very shallow Rough soils
- Small areas of rock outcrop

Similar soils:
- The shallow Weikert soils
- The shallow Klinesville soils
- Lehew soils that have sandier textures throughout
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 15 percent or more than 25 percent

Use and Management

Uses: Most areas of these Berks and Calvin soils are wooded. Some are used for hay and pasture, and a few small areas are used for crops. A few areas have been used for building site development.

Cropland
Suitability: Poorly suited (better suited to hay and pasture)
Management concerns:
- The hazard of erosion is severe in unprotected areas.
- These soils are droughty during the growing season and have low natural fertility.

Management measures:
- Conservation tillage, contour farming, contour stripcropping, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Seedling mortality may be a problem on south aspects due to droughtiness during the summer months.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building roads and trails on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged help to control erosion.

- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development
Management concerns:
- The slope is a severe limitation affecting building site development.
- These soils are poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The depth to bedrock and the slope may interfere with the proper functioning of septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.
- The hazard of erosion is severe on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land.
- Building roads and streets on the contour helps to overcome the slope.
- Selecting areas of the deepest included soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock and the slope.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 4e
Prime farmland: No
Hydric soil: No

BcE—Berks-Calvin channery loams, 25 to 35 percent slopes

Setting

Landscape position: Steep, convex, dissected uplands; mainly in the Sleepy Creek drainage area

Composition

Berks soil and similar soils: 50 percent
Calvin soil and similar soils: 40 percent
Dissimilar inclusions: 10 percent

Typical Profile

Berks
Surface layer:
0 to 5 inches—brown channery loam

Subsoil:
5 to 10 inches—brown channery loam
10 to 19 inches—yellowish brown and strong brown very channery loam

Underlying material:
19 to 23 inches—strong brown and yellowish brown extremely channery loam

Bedrock:
23 inches—yellowish brown, fractured shale

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Soil Properties and Qualities

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- Small areas of the moderately well drained Philo soils along narrow, intermittent drainageways

- The moderately well drained Buchanan and Hustontown soils on footslopes
- The very shallow Rough soils
- Small areas of rock outcrop

Similar soils:
- The shallow Weikert soils
- The shallow Klinesville soils
- Lehew soils that have sandier textures throughout
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 25 percent or more than 35 percent

Use and Management

Uses: Most areas of these Berks and Calvin soils are wooded. A few small areas are used for pasture.

Cropland
Suitability: Not suited
Management concerns:
- These soils are not suited to cultivated crops because of the steep slopes, the very severe hazard of erosion, droughtiness, and a low fertility level.

Pasture and Hayland
Suitability: Not suited to hay; suited to pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the sod.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Seedling mortality may be a problem on south aspects due to droughtiness during the summer months.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged help to prevent excessive erosion.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development

Management concerns:
- The slope is a severe limitation affecting building site development.
- These soils are poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The slope and the depth to bedrock make these soils generally unsuitable as a site for septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.
- The hazard of erosion is severe on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land.
- Building roads and streets on the contour helps to overcome the slope.
- Selecting the deepest areas of the included soils as sites for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock and the slope.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6e
Prime farmland: No
Hydric soils: No

BcF—Berks-Calvin channery loams, 35 to 65 percent slopes

Setting

Landscape position: Very steep, convex, dissected uplands; mainly in the Sleepy Creek drainage area

Composition

Berks soil and similar soils: 50 percent
Calvin soil and similar soils: 40 percent
Dissimilar inclusions: 10 percent

Typical Profile

Berks

Surface layer:
0 to 5 inches—brown channery loam

Subsoil:
5 to 10 inches—brown channery loam
10 to 19 inches—yellowish brown and strong brown very channery loam

Underlying material:
19 to 23 inches—strong brown and yellowish brown extremely channery loam

Bedrock:
23 inches—yellowish brown, fractured shale

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Soil Properties and Qualities

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- Small areas of the moderately well drained Philo soils along narrow, intermittent drainageways

- The moderately well drained Buchanan and Hustontown soils on footslopes
- The very shallow Rough soils
- Small areas of rock outcrop

Similar soils:
- The shallow Weikert soils
- The shallow Klinesville soils
- Lehew soils that have sandier textures throughout
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: Most areas of these Berks and Calvin soils are wooded. A few small areas are used as pasture.

Cropland
Suitability: Not suited
Management concerns:
- These soils are unsuited to cultivated crops because of the very steep slopes, the very severe hazard of erosion, droughtiness, and the low fertility level.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- The very steep slopes and the very severe hazard of erosion make these soils unsuited to pasture and hay production.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- Seedling mortality may be a problem on south aspects due to droughtiness during the summer months.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment.
- Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.

Community Development
Management concerns:
- The very steep slopes and the limited depth to bedrock are severe limitations affecting community development.
- These soils are generally unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soils: No

BeB—Berks-Clearbrook channery silt loams, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, shallowly dissected upland ridges and hilltops; Berks—mainly on the more sloping, convex portion of the landscape; Clearbrook—mainly on the less sloping, smooth to slightly concave portion of the landscape

Composition

Berks soil and similar soils: 50 percent
Clearbrook soil and similar soils: 45 percent
Dissimilar inclusions: 5 percent

Typical Profile

Berks
Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 12 inches—yellowish brown channery silt loam
12 to 21 inches—yellowish brown and strong brown very channery silt loam

Underlying material:
21 to 25 inches—strong brown and yellowish brown extremely channery silt loam

Bedrock:
25 inches—yellowish brown, fractured shale

Clearbrook
Surface layer:
0 to 8 inches—olive brown channery silt loam

Subsoil:
8 to 13 inches—light olive brown channery silty clay loam that has strong brown and light grayish brown redoximorphic features
13 to 19 inches—light grayish brown very channery silty clay loam that has strong brown and yellowish brown redoximorphic features

Underlying material:
19 to 22 inches—light brownish gray and gray extremely channery silty clay

Bedrock:
22 inches—stratified dark brown and reddish brown, weathered shale

Soil Properties and Qualities

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None

Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Clearbrook
Drainage class: Somewhat poorly drained
Permeability: Moderately slow (0.2 inch to 0.6 inches per hour)
Available water capacity: Very low or low
Depth to the seasonal high water table: 1.0 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Weathered shale; rippable in most areas

Minor Components

Dissimilar inclusions:
- Small areas of the deep Cavode soils along upland drainageways

Similar soils:
- The shallow Weikert soils
- Small areas of the moderately deep Calvin soils and the shallow Klinesville soils that have a reddish brown subsoil
- Soils that are more than 40 inches deep over bedrock
- Soils that have slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: About 50 percent of the areas of these Berks and Clearbrook soils have been cleared. Many areas are used for hay and pasture. A few small areas are homesites, and in a few areas, the acreage is idle land. The remainder is used as woodland.

Cropland
Suitability: Suited
Management concerns:
- Erosion is a hazard in unprotected areas.
- Tillage may be delayed in the spring because of the seasonal high water table in the Clearbrook soil.
- Droughtiness during the growing season and the low natural fertility are management concerns.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.

- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum crop production.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table in areas of the Clearbrook soil)

Management concerns:

- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Grazing during wet periods results in surface compaction, poor tilth, and damage to the sod.
- The droughtiness of these soils limits forage production during summer.

Management measures:

- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:

- Erosion is a hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.
- The wetness may limit the use of logging equipment during the winter and spring in areas of the Clearbrook soil.
- The seasonal wetness of the Clearbrook soil increases the seedling mortality rate.

Management measures:

- Adequately preparing the site helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.
- Building logging roads and skid trails on the contour and seeding the roads, log landings, and trails to perennial grasses and legumes reduce the hazard of erosion.
- The tree species that can withstand the seasonal wetness in areas of the Clearbrook soil should be selected for planting.

Community Development

Management concerns:

- The depth to bedrock in the Berks and Clearbrook soils and the seasonal high water table in the Clearbrook soil are severe limitations on sites for septic tank absorption fields.
- The depth to bedrock is a limitation affecting excavation, building site development, and road construction. In most areas, however, the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- The wetness of the Clearbrook soil is a limitation affecting building site development and road construction. It is also a limitation affecting excavation and trafficability and may delay construction in the winter and spring.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils.
- The hazard of erosion is moderate on construction sites.

Management measures:
- Selecting the deepest areas of well drained soils, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock and the seasonal high water table on sites for septic tank absorption fields.
- When building in areas of the Clearbrook soil, installing wide reinforced footers and footer drains, sealing foundation walls, and backfilling with porous material help to keep basements dry and to prevent walls and foundations from cracking.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the bedrock and the water table.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness in areas of the Clearbrook soil.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks. Seeded areas should be mulched with straw.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 2e
Prime farmland: No
Hydric soils: No

BeC—Berks-Clearbrook channery silt loams, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, shallowly dissected upland ridges, hilltops, and streamheads; Berks—mainly on the more sloping, convex portion of the landscape; Clearbrook—mainly on the less sloping, smooth to concave portion of the landscape

Composition

Berks soil and similar soils: 55 percent
Clearbrook soil and similar soils: 40 percent
Dissimilar inclusions: 5 percent

Typical Profile

Berks
Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 12 inches—yellowish brown channery silt loam
12 to 21 inches—yellowish brown and strong brown very channery silt loam

Underlying material:
21 to 25 inches—strong brown and yellowish brown extremely channery silt loam

Bedrock:
25 inches—yellowish brown, fractured shale

Clearbrook
Surface layer:
0 to 8 inches—olive brown channery silt loam

Subsoil:
8 to 13 inches—light olive brown channery silty clay loam that has strong brown and light grayish brown redoximorphic features
13 to 19 inches—light grayish brown very channery silty clay loam that has strong brown and yellowish brown redoximorphic features

Underlying material:
19 to 22 inches—light brownish gray and gray extremely channery silty clay

Bedrock:
22 inches—stratified dark brown and reddish brown, weathered shale

Soil Properties and Qualities

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Clearbrook
Drainage class: Somewhat poorly drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour)
Available water capacity: Very low or low
Depth to the seasonal high water table: 1.0 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Weathered shale; rippable in most areas

Minor Components

Dissimilar inclusions:
- Small areas of the deep Cavode soils along upland drainageways

Similar soils:
- The shallow Weikert soils
- Small areas of the moderately deep Calvin soils and the shallow Klinesville soils that have a reddish brown subsoil
- Small areas of the moderately deep Dekalb soils that have sandier textures throughout
- Soils that are more than 40 inches deep over bedrock
- Soils that have slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: About 50 percent of the areas of these Berks and Clearbrook soils have been cleared. Many areas are used for hay and pasture. A few small areas are homesites, and in a few areas, the acreage is idle land. The remainder is used as woodland.

Cropland

Suitability: Suited

Management concerns:
- Erosion is a severe hazard in unprotected areas.
- Tillage may be delayed in the spring because of the seasonal high water table in the Clearbrook soil.
- Droughtiness during the growing season and the low natural fertility are management concerns.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum crop production.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table in areas of the Clearbrook soil)

Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Grazing during wet periods results in surface compaction, poor tilth, and damage to the sod.
- The droughtiness of these soils limits forage production during summer.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.
- The wetness may limit the use of logging equipment during the winter and spring in areas of the Clearbrook soil.
- The seasonal wetness of the Clearbrook soil increases the seedling mortality rate.

Management measures:
- Adequately preparing the site helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

- Building logging roads and skid trails on the contour and seeding the roads, log landings, and trails to perennial grasses and legumes reduce the hazard of erosion.
- The tree species that can withstand the seasonal wetness of the Clearbrook soil should be selected for planting.

Community Development

Management concerns:

- The depth to bedrock in the Berks and Clearbrook soils and the seasonal high water table in the Clearbrook soil are severe limitations on sites for septic tank absorption fields.
- The depth to bedrock is a limitation affecting excavation, building site development, and road construction. In most areas, however, the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- The slope is a limitation affecting building site development and road construction.
- The wetness of the Clearbrook soil is a limitation affecting building site development and road construction. It is also a limitation affecting excavation and trafficability and may delay construction in the winter and spring.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils.
- The hazard of erosion is severe on construction sites.

Management measures:

- Selecting the deepest areas of well drained soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock and the seasonal high water table.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- When building in areas of the Clearbrook soil, installing wide reinforced footers and footer drains, sealing foundation walls, and backfilling with porous material help to keep basements dry and to prevent walls and foundations from cracking.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the bedrock and the water table.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness in areas of the Clearbrook soil.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks. Seeded areas should be mulched with straw.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soils: No

BkB—Berks-Weikert channery silt loams, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, convex, dissected uplands
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to map them separately.

Composition

Berks soil and similar soils: 45 percent
Weikert soil and similar soils: 40 percent
Dissimilar inclusions: 15 percent

Typical Profile

Berks
Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 12 inches—yellowish brown channery silt loam
12 to 21 inches—yellowish brown and strong brown very channery silt loam

Underlying material:
21 to 25 inches—strong brown and yellowish brown extremely channery silt loam

Bedrock:
25 inches—yellowish brown, fractured shale

Weikert
Surface layer:
0 to 6 inches—dark brown channery silt loam

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

Underlying material:
14 to 18 inches—yellowish brown extremely channery silt loam

Bedrock:
18 inches—gray, fractured shale

Soil Properties and Qualities

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Weikert
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate

Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The somewhat poorly drained Clearbrook soils and the somewhat poorly drained Cavode soils in depressions and on head slopes

Similar soils:
- Small areas of the moderately deep Calvin soils and the shallow Klinesville soils that have a reddish brown subsoil
- Soils that are more than 40 inches deep over bedrock
- Soils that have slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of these Berks and Weikert soils have been cleared and are used for hay and pasture. Some are wooded. A few areas are used for cultivated crops, orchards, or community development.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- Droughtiness during the growing season and the low natural fertility are management concerns.

Management measures:
- Conservation tillage, contour farming, cover crops, a cropping sequence that includes grasses and legumes, and crop residue management help to control erosion and to maintain fertility and tilth.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Water for livestock is scarce in areas of this map unit, but potential sites where ponds or springs can be developed are generally available along nearby drainageways.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.

- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate or moderately high
Management concerns:
- Seedling mortality is a concern because of the droughtiness of the Weikert soil.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Building logging roads and skid trails on the contour and seeding the roads, log landings, and trails to perennial grasses and legumes reduce the hazard of erosion.

Community Development
Management concerns:
- The hazard of erosion is moderate on construction sites.
- The depth to bedrock is a limitation on sites for septic tank absorption fields.
- The depth to bedrock is a limitation affecting excavation, building site development, and road construction. In most areas, however, the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south-facing slopes.
- The rock fragments in the surface layer and the droughtiness make the establishment of lawns difficult.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Selecting the deepest areas of soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks. Seeded areas should be mulched with straw.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soils: No

BqF—Blackthorn very gravelly sandy loam, 35 to 55 percent slopes, rubbly

Setting

Landscape position: Very steep, linear to concave backslopes and colluvial benches; on the western aspect of Warm Springs Ridge and the eastern aspect of Tonoloway Ridge and Little Mountain
Note: This soil is underlain by limestone bedrock.

Composition

Blackthorn soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 1.5 inches—bouldery, slightly decomposed organic matter from hardwood leaf litter
1.5 to 2 inches—bouldery, highly decomposed organic matter from hardwood leaf litter
2 to 4 inches—very dark grayish brown very gravelly sandy loam

Subsurface layer:
4 to 7 inches—brown very gravelly sandy loam

Subsoil:
7 to 31 inches—yellowish brown very gravelly sandy loam
31 to 47 inches—yellowish brown very gravelly loam
47 to 65 inches—yellowish red silty clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour) in the upper part of the subsoil and moderately slow or moderate (0.2 inch to 2.0 inches per hour) in the lower part
Available water capacity: Moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low in the upper part of the subsoil and moderate in the lower part
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 15 to 50 percent covered with stones and boulders
Natural fertility: Low or moderate
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0) in the upper part of the subsoil and very strongly acid or strongly acid in the lower part (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Small areas of the moderately deep Caneyville soils on convex nose slopes
- Small areas of the moderately deep Dekalb and Schaffenaker soils on convex shoulder slopes

Similar soils:
- Murrill soils that have fewer rock fragments throughout the profile
- Soils with slopes of less than 35 percent or more than 55 percent

Use and Management

Uses: All areas of this Blackthorn soil are wooded.

Cropland
Suitability: Not suited

Management concerns:
- Because of the very steep slopes and the stones and boulders, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- The very steep slopes and the stones and boulders make this soil unsuited to hay and pasture.

Woodland
Potential productivity: Moderately high
Management concerns:
- The very steep slopes make the operation of logging equipment hazardous.
- Erosion is a severe hazard on logging roads and skid trails.
- The large stones and boulders on the surface can hinder harvesting operations and damage equipment.
- The large stones and boulders on the surface can hinder the planting of tree seedlings.
- Seedling mortality is a management concern on south aspects.
- Plant competition is moderate when openings are made in the canopy.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and log landings to perennial grasses and legumes; and installing water bars and culverts.
- Because of the stones and boulders on the soil surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
- Harvesting methods that do not remove all of the overstory help to control plant competition.

Community Development
Management concerns:
- Because of the very steep slopes and the stones and boulders on the surface, this soil is generally unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

BrB—Brinkerton silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, concave toeslopes
Note: Seepy spots and springs common in some areas

Composition

Brinkerton soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

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

Subsurface layer:
2 to 7 inches—grayish brown silt loam with yellowish brown redoximorphic features

Subsoil:
7 to 21 inches—light brownish gray silty clay loam with strong brown and gray redoximorphic features
21 to 31 inches—mixed light brownish gray and gray, very firm and brittle silty clay loam with strong brown redoximorphic features
31 to 45 inches—mixed, gray and light brownish gray, very firm and brittle channery silty clay loam

Underlying material:
45 to 60 inches—brown extremely channery loam with gray and grayish brown redoximorphic features

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Slow (0.06 to 0.2 inch per hour)
Available water capacity: Moderate
Depth to the seasonal high water table: Within 0.5 foot
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid throughout (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately well drained Buchanan soils
- The moderately well drained Ernest soils
- Small areas of the poorly drained Dunning soils along drainageways

Similar soils:
- The poorly drained Andover soils that are sandier throughout
- Somewhat poorly drained soils
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of this Brinkerton soil are wooded. A few areas have been cleared. In these areas the soil is used as pasture or the acreage is idle land. Most of the areas that have not been previously drained form wetlands. A Federal permit may be required before these areas can be disturbed.

Cropland
Suitability: Poorly suited because of the seasonal high water table and the slow permeability (Crops can be grown, however, if the soil has been adequately drained.)

Management concerns:
- The seasonal wetness may delay tilling and planting in the spring.
- Tilling and harvesting when the soil is wet may cause compaction and deterioration of tilth.
- Erosion is a moderate hazard in unprotected areas.

Management measures:
- Minimizing tillage and tilling and harvesting at the proper soil moisture content help to prevent excessive compaction and maintain tilth.
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Grazing during wet periods results in surface compaction, poor tilth, and damage to the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Hay and pasture species that can withstand the seasonal wetness should be selected for seeding.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: High for water-tolerant species

Management concerns:
- Because of the wetness, equipment can only be used during the dry summer months and in the winter when the soil is frozen.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some trees, resulting in a high seedling mortality rate and windthrow damage.
- Competition from undesirable plants may slow the growth of planted tree seedlings.

Management measures:
- Tree species that can withstand wetness should be selected for planting.
- Windthrow can be minimized by harvest methods that do not leave the remaining trees widely spaced.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The seasonal high water table is a severe limitation affecting building site development.
- The seasonal high water table, low strength, and frost action are severe limitations affecting local roads and streets. Because this soil is soft when wet, the pavement is subject to cracking and buckling under heavy loads.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in winter and spring.
- The seasonal high water table and the slow permeability are severe limitations on sites for septic tank absorption fields.
- Erosion is a moderate hazard on construction sites.

Management measures:
- A better suited soil should be considered as a site for septic tank absorption fields.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 4w
Prime farmland: No
Hydric soil: Yes

BuB—Buchanan gravelly loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, slightly concave mountain footslopes and toeslopes
Note: Seeps and springs common in some areas

Composition

Buchanan soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches—brown gravelly loam

Subsoil:
8 to 16 inches—brownish yellow gravelly loam
16 to 24 inches—light yellowish brown gravelly loam with strong brown redoximorphic features
24 to 33 inches—strong brown gravelly loam with pale brown, light brownish gray, and yellowish red redoximorphic features
33 to 52 inches—strong brown, firm and brittle gravelly loam with light brownish gray, dark red, and brownish yellow redoximorphic features
52 to 65 inches—reddish brown, very firm and brittle very gravelly loam with gray and red redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained; seepy spots common during the wet months in winter and spring
Permeability: Moderate (0.6 inch to 6.0 inches per hour) above the firm layer in the subsoil and slow (0.06 to 0.2 inch per hour) in the firm layer
Available water capacity: Very low to moderate
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Natural fertility: Low or moderate
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5) throughout
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The poorly drained Andover soils in depressions and along upland drainageways
- The somewhat poorly drained Cavode soils
- The moderately deep Calvin soils

Similar soils:
- Small areas of the moderately well drained Ernest soils
- The moderately well drained Sideling soils
- Soils that have a surface layer of sandy loam
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most of the acreage of this Buchanan soil has been cleared. In these areas the soil is used for pasture and hay or has been used for community development, or the acreage is idle land. Some areas are used as woodland.

Cropland
Suitability: Suited (The seasonal high water table and the firm layer in the subsoil, however, may restrict the rooting depth of some crops.)
Management concerns:
- Erosion is a moderate hazard in unprotected areas.
- Because of the restricted rooting depth, crops may be adversely affected by a shortage of water as the soil dries out in summer.
- The wetness may delay spring planting.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture in summer.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate hazard if the plant cover is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The soil is soft when wet, and grazing early in spring can damage the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development
Management concerns:
- The seasonal high water table is the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- Because this soil is soft when wet, road pavement may crack under heavy loads.
- Water may seep from cutbanks during wet periods.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- The hazard of erosion on contruction sites is moderate.

Management measures:
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the water table.
- Installing tile drainage lines upslope from the absorption fields helps to overcome the wetness.
- Enlarging the absorption field, installing alternating absorption fields, installing distribution lines on the contour, and backfilling lines with gravel help to compensate for the restricted permeability in the lower part of the subsoil.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

BuC—Buchanan gravelly loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, slightly concave mountain footslopes and toeslopes
Note: Seeps and springs common in some areas

Composition

Buchanan soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches—brown gravelly loam

Subsoil:
8 to 16 inches—brownish yellow gravelly loam

16 to 24 inches—light yellowish brown gravelly loam with strong brown redoximorphic features
24 to 33 inches—strong brown gravelly loam with pale brown, light brownish gray, and yellowish red redoximorphic features
33 to 52 inches—strong brown, firm and brittle gravelly loam with light brownish gray, dark red, and brownish yellow redoximorphic features
52 to 65 inches—reddish brown, very firm and brittle very gravelly loam with gray and red redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained; seepy spots common during the wet months in winter and spring
Permeability: Moderate (0.6 inch to 6.0 inches per hour) above the firm layer in the subsoil and slow (0.06 to 0.2 inch per hour) in the firm layer
Available water capacity: Very low to moderate
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Natural fertility: Low or moderate
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5) throughout
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Small areas of the moderately deep Calvin, Berks, or Litz soils on convex slopes
- Small areas of the poorly drained Andover soils along upland drainageways

Similar soils:
- The moderately well drained Sideling soils on convex portions of the landscape
- Soils with slopes of less than 8 percent or more than 15 percent
- Small areas of the moderately well drained Ernest soils

Use and Management

Uses: Most of the acreage of this Buchanan soil has been cleared and is used for pasture, hay, or community development or is idle land. Some areas are used as woodland.

Cropland
Suitability: Suited
Management concerns:
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some crops.
- Erosion is a severe hazard in unprotected areas.
- Because of the restricted rooting depth, some crops may be adversely affected by a shortage of water as the soil dries out in summer.
- The wetness may delay spring planting.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve moisture in summer.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:

- Erosion is a severe hazard if the plant cover is removed by overgrazing.
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- This soil is soft when wet, and grazing early in spring can damage the sod.

Management measures:

- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:

- Erosion is a hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.
- The use of vehicular equipment is restricted during wet periods because the soil is soft when wet.

Management measures:

- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:

- The seasonal high water table is the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- The slope increases the amount of excavation required during the construction of roads and buildings.
- Because this soil is soft when wet, road pavement may crack under heavy loads.
- Water may seep from cutbanks during wet periods.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- The hazard of erosion on construction sites is severe.

Management measures:

- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the water table.
- Installing tile drainage lines upslope from absorption fields helps to overcome the wetness.
- Enlarging the absorption field, installing alternating absorption fields, installing distribution lines on the contour, and backfilling lines with gravel help to compensate for the restricted permeability in the lower part of the subsoil.
- Constructing roads on raised fill material and installing a drainage system help to overcome the wetness.
- Roads and streets should be built on the contour.

- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

BxC—Buchanan loam, 3 to 15 percent slopes, extremely stony

Setting

Landscape position: Gently sloping and strongly sloping, slightly concave mountain footslopes and toeslopes
Note: Seeps and springs common in some areas

Composition

Buchanan soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 3 inches—slightly decomposed organic material from hardwood leaf litter
3 to 4 inches—moderately decomposed organic material from hardwood leaf litter
4 to 5 inches—very dark gray loam

Subsurface layer:
5 to 7 inches—light yellowish brown loam

Subsoil:
7 to 16 inches—brownish yellow gravelly loam
16 to 24 inches—light yellowish brown gravelly loam with strong brown redoximorphic features
24 to 33 inches—strong brown gravelly loam with yellowish red, pale brown, and light brownish gray redoximorphic features
33 to 52 inches—strong brown, firm and brittle gravelly loam with brownish yellow, light brownish gray, and dark red redoximorphic features
52 to 65 inches—reddish brown, very firm and brittle very gravelly loam with gray and red redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour) above the firm or very firm layer in the subsoil and slow (0.06 to 0.2 inch per hour) in the firm or very firm layer
Available water capacity: Low or moderate
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate or severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low or moderate
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5) throughout

Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:
- The poorly drained Andover soils in depressions
- Small areas of the poorly drained Cavode soils
- Small areas of soils that are along drainageways and are subject to flooding
- Very rubbly soils that have more than 50 percent of their surface covered with stones and boulders

Similar soils:
- The moderately well drained Sideling soils on convex portions of the landscape
- Small areas of the moderately well drained Ernest soils
- Small areas of the moderately well drained Clarksburg soils
- Soils with slopes of less than 3 percent or more than 15 percent

Use and Management

Uses: Most areas of this Buchanan soil are used as woodland. A few small areas are used as pasture.

Cropland
Suitability: Not suited
Management concerns:
- Because of the stones and boulders on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate or severe hazard if the plant cover is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Because this soil is soft when wet, grazing early in spring damages the sod.
- The slope and the stones and boulders on the soil surface make the operation of conventional equipment used in clipping and applying fertilizer difficult.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- The large stones on the soil surface can hinder harvesting operations and damage equipment.
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Plant competition is moderate when openings are made in the canopy.

- The stones and boulders on the soil surface may interfere with the planting of tree seedlings.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Erosion can be minimized by building roads and skid trails on the contour; seeding logging roads, trails, and areas that have been cut and filled; and installing water bars and culverts.

Community Development

Management concerns:
- The seasonal high water table is the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- This soil has slowly permeable layers in the subsoil. The restricted permeability is a severe limitation on sites for septic tank absorption fields.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Water may seep from cutbanks during wet periods.
- The slope and frost action are limitations affecting local roads and streets.
- The wetness is a limitation on sites for local roads and streets. Because this soil is soft when wet, the pavement cracks under heavy loads.
- The stones and boulders may interfere with construction and with the establishment of lawns and landscaping.
- Erosion on construction sites is a moderate or severe hazard in unprotected areas.

Management measures:
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Installing drainage tile upslope from the absorption field helps to overcome the wetness.
- Enlarging the absorption field, installing alternating absorption fields, and installing distribution lines on the contour or as shallow as possible help to compensate for the restricted permeability in the lower part of the subsoil.
- Roads and streets should be built on the contour.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and frost action.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

BxE—Buchanan loam, 15 to 35 percent slopes, extremely stony

Setting

Landscape position: Moderately steep and steep, slightly concave mountain benches, footslopes, and toeslopes
Note: Seeps and springs common in some areas

Composition

Buchanan soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 1 inch—slightly decomposed organic matter from hardwood leaf litter
1 to 2 inches—very dark gray loam

Subsurface layer:
2 to 4 inches—light yellowish brown loam

Subsoil:
4 to 13 inches—brownish yellow gravelly loam
13 to 21 inches—light yellowish brown gravelly loam mottled with strong brown
21 to 30 inches—strong brown gravelly loam with yellowish red, pale brown and light brownish gray redoximorphic features
30 to 49 inches—strong brown, firm and brittle gravelly loam with brownish yellow, light brownish gray, and dark red redoximorphic features
49 to 65 inches—reddish brown, very firm and brittle very gravelly loam with gray and red redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour) above the firm or very firm layer in the subsoil and slow (0.06 to 0.2 inch per hour) in the firm or very firm layer
Available water capacity: Low or moderate
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe or very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low or moderate
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5) throughout
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Small areas of the moderately deep Berks, Dekalb, or Calvin soils on convex portions of the landscape
- Very rubbly soils that have more than 50 percent of their surface covered with stones and boulders
- Small areas of the well drained Hazleton soils

Similar soils:
- The moderately well drained Sideling soils on linear portions of the landscape
- Soils with slopes of less than 15 percent or more than 35 percent

Use and Management

Uses: Most areas of this Buchanan soil are used as woodland. A few small areas are used as pasture.

Cropland

Suitability: Not suited

Management concerns:

- Because of the slope and the stones and boulders on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland

Suitability: Not suited to hay and difficult to manage for pasture (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:

- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Erosion is a severe or very severe hazard if the plant cover is removed by overgrazing.
- Because this soil is soft when wet, grazing early in spring damages the sod.
- The slope and the stones and boulders on the soil surface make the operation of conventional equipment used in clipping and applying fertilizer difficult.

Management measures:

- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:

- Erosion on logging roads and skid trails is a management concern.
- Large stones on the soil surface can hinder harvesting operations and damage equipment.
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Seedling mortality is a concern on south-facing slopes.
- Plant competition is moderate when openings are made in the canopy.
- Stones and boulders on the soil surface may interfere with the planting of tree seedlings.

Management measures:

- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and areas that have been cut and filled; and installing water bars and culverts.

Community Development

Management concerns:

- The slope and the seasonal high water table are the main limitations affecting building site development, septic tank absorption fields, and local roads and streets.
- This soil has slowly permeable layers in the subsoil. The restricted permeability is a severe limitation on sites for septic tank absorption fields.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Water may seep from cutbanks during wet periods.
- Frost action is a limitation affecting local roads and streets.
- The wetness is a limitation affecting local roads and streets. Because this soil is soft when wet, the pavement cracks under heavy loads.

- The stones and boulders may interfere with construction and with the establishment of lawns and landscaping.
- Erosion is a severe hazard on construction sites in unprotected areas.

Management measures:
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings should be designed so that they conform to the natural slope of the land. Extensive land shaping is necessary in most areas.
- Installing drainage tile upslope from the absorption field helps to overcome the wetness.
- Enlarging the absorption field, installing alternating absorption fields, installing distribution lines on the contour, and backfilling lines with gravel help to compensate for the restricted permeability in the lower part of the subsoil.
- Roads and streets should be built on the contour.
- Constructing roads and streets on raised fill material, installing a drainage system, and installing a filter fabric help to prevent the damage caused by frost action and wetness.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

CbB—Calvin-Berks channery loams, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, convex uplands; mainly in the Sleepy Creek drainage area

Composition

Calvin soil and similar soils: 55 percent
Berks soil and similar soils: 35 percent
Dissimilar inclusions: 10 percent

Typical Profile

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Berks
Surface layer:
0 to 5 inches—brown channery loam

Subsoil:
5 to 10 inches—brown channery loam
10 to 19 inches—yellowish brown and strong brown very channery loam

Underlying material:
19 to 23 inches—strong brown and yellowish brown extremely channery loam

Bedrock:
23 inches—yellowish brown, fractured shale

Soil Properties and Qualities

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale, fine grained sandstone or siltstone; interbedded in some areas

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The somewhat poorly drained Clearbrook soils on concave head slopes

Similar soils:
- The shallow Weikert soils
- The shallow Klinesville soils

- Lehew soils that have sandier textures than the Berks and Calvin soils
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of these Calvin and Berks soils have been cleared and are used for hay and pasture or as cropland. Some have been used for building site development.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- These soils are droughty during the growing season and have low natural fertility.

Management measures:
- Conservation tillage, contour farming, contour stripcropping, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a moderate hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Seeding logging roads, skid trails, and log landings after the trees are logged helps to control erosion.

Community Development
Management concerns:
- The bedrock may interfere during excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The bedrock may interfere with the proper functioning of septic tank absorption fields.

- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- The hazard of erosion is moderate on construction sites.

Management measures:

- Selecting the deepest areas of these soils as sites for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 2e
Prime farmland: No
Hydric soil: No

CbC—Calvin-Berks channery loams, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex uplands; mainly in the Sleepy Creek drainage area

Composition

Calvin soil and similar soils: 50 percent
Berks soil and similar soils: 35 percent
Dissimilar inclusions: 15 percent

Typical Profile

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Berks
Surface layer:
0 to 5 inches—brown channery loam

Subsoil:
5 to 10 inches—brown channery loam
10 to 19 inches—yellowish brown and strong brown very channery loam

Underlying material:
19 to 23 inches—strong brown and yellowish brown extremely channery loam

Bedrock:
23 inches—yellowish brown, fractured shale

Soil Properties and Qualities

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The somewhat poorly drained Clearbrook soils on concave head slopes
- Small areas of the moderately well drained Buchanan and Hustontown soils on footslopes

Similar soils:
- The shallow Weikert soils
- The shallow Klinesville soils
- Lehew soils that have sandier textures
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of these Calvin and Berks soils have been cleared and are used for hay, pasture, crops, or orchards (fig. 6). Some areas have been used for building site development. Other areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is severe in unprotected areas.

Figure 6.—A typical area of Calvin-Berks channery loams, 8 to 15 percent slopes, used for cultivated crops and hay.

- These soils are droughty during the growing season and have low natural fertility.

Management measures:
- Conservation tillage, contour farming, contour stripcropping, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland

Suitability: Suited

Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The bedrock may interfere during excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The bedrock may interfere with the proper functioning of septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- The hazard of erosion is severe on construction sites.

Management measures:
- Selecting the deepest areas of these soils as sites for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

CkB—Calvin-Klinesville channery loams, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, slightly convex hilltops and ridges

Composition

Calvin soil and similar soils: 65 percent
Klinesville soil and similar soils: 30 percent
Dissimilar inclusions: 5 percent

Typical Profile

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Klinesville
Surface layer:
0 to 2 inches—dark reddish brown channery loam

Subsurface layer:
2 to 5 inches—reddish brown very channery loam

Subsoil:
5 to 14 inches—reddish brown very channery loam

Underlying material:
14 to 18 inches—dark reddish brown very channery loam

Bedrock:
18+ inches—dusky red, moderately weathered, fine grained sandstone

Soil Properties and Qualities

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Klinesville
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- The deep, moderately well drained Hustontown soils on head slopes
- The somewhat poorly drained Clearbrook soils
- The very shallow Rough soils

Similar soils:
- The moderately deep Berks soils and the shallow Weikert soils, which have a yellowish brown subsoil
- Dekalb and Lehew soils, which have sandier textures throughout
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Many areas of these Calvin and Klinesville soils have been cleared and are used for hay and pasture, orchards, or crops. Some areas are used for community development, and other areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- These soils are droughty during the growing season and have low natural fertility.

Management measures:
- Crop residue management, green manure crops, applications of manure, cover crops, and conservation tillage help to maintain or improve tilth and increase available water capacity and organic matter content.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a moderate hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high or moderate
Management concerns:
- Seedling mortality is a concern in areas of the Klinesville soil because of the droughtiness.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The hazard of erosion is moderate on construction sites.
- The depth to bedrock is a limitation on sites for septic tank absorption fields.
- The depth to bedrock is a moderate limitation affecting excavation, building site development, and road construction. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Selecting the deepest areas of these soils as sites for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

CkC—Calvin-Klinesville channery loams, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex hilltops, ridges, and shoulder slopes

Composition

Calvin soil and similar soils: 65 percent
Klinesville soil and similar soils: 30 percent
Dissimilar inclusions: 5 percent

Typical Profile

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Klinesville
Surface layer:
0 to 2 inches—dark reddish brown channery loam

Subsurface layer:
2 to 5 inches—reddish brown very channery loam

Subsoil:
5 to 14 inches—reddish brown very channery loam

Underlying material:
14 to 18 inches—dark reddish brown very channery loam

Bedrock:
18+ inches—dusky red, moderately weathered, fine grained sandstone

Soil Properties and Qualities

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale, fine grained sandstone or siltstone; interbedded in some areas

Klinesville
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Reddish shale, fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- The deep, moderately well drained Hustontown soils on concave head slopes
- The somewhat poorly drained Clearbrook soils
- The very shallow Rough soils

Similar soils:
- The moderately deep Berks soils and the shallow Weikert soils, which have a yellowish brown subsoil
- Dekalb and Lehew soils, which have sandier textures throughout
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Many areas of these Calvin and Klinesville soils have been cleared and are used for hay and pasture, orchards, or crops. Some have been used for urban development. Many are wooded.

Cropland
Suitability: Poorly suited (better suited to hay and pasture or to orchards)
Management concerns:
- The hazard of erosion is severe in unprotected areas.
- These soils are droughty during the growing season and have low natural fertility.

Management measures:
- Conservation tillage, contour farming, contour stripcropping, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high or moderate
Management concerns:
- Seedling mortality is a concern in areas of the Klinesville soil because of the droughtiness.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The hazard of erosion is severe on construction sites.
- The depth to bedrock is a limitation on sites for septic tank absorption fields.
- The depth to bedrock is a moderate limitation affecting excavation, building site development, and road construction. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The slope is a limitation affecting building site development and local roads and streets.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Selecting the deepest areas of these soils as sites for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Building roads and streets on the contour helps to overcome the slope.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.

Interpretive Groups

Land capability classification: 4e
Prime farmland: No
Hydric soil: No

CkD—Calvin-Klinesville channery loams, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex shoulder slopes and hillsides

Composition

Calvin soil and similar soils: 65 percent
Klinesville soil and similar soils: 30 percent
Dissimilar inclusions: 5 percent

Typical Profile

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Klinesville
Surface layer:
0 to 2 inches—dark reddish brown channery loam

Subsurface layer:
2 to 5 inches—reddish brown very channery loam

Subsoil:
5 to 14 inches—reddish brown very channery loam

Underlying material:
14 to 18 inches—dark reddish brown very channery loam

Bedrock:
18+ inches—dusky red, moderately weathered, fine grained sandstone

Soil Properties and Qualities

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Klinesville
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low

Depth to bedrock: 10 to 20 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- The deep, moderately well drained Hustontown soils on concave head slopes
- The very shallow Rough soils

Similar soils:
- The moderately deep Berks soils and the shallow Weikert soils, which have a yellowish brown subsoil
- Dekalb and Lehew soils, which have sandier textures throughout
- Soils with slopes of less than 15 percent or more than 25 percent

Use and Management

Uses: Some areas of these Calvin and Klinesville soils have been cleared and are used for hay and pasture or for orchards. A few areas have been used for community development. Most areas are wooded.

Cropland
Suitability: Not suited
Management concerns:
- These soils are not suited to cultivated crops because of the moderately steep slopes, the severe hazard of erosion, the droughtiness, and the low fertility level.

Pasture and Hayland
Suitability: Not suited to hay; suited to pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects
Management concerns:
- Seedling mortality is a concern because of the droughtiness of these soils, especially on south-facing slopes.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.

- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged help to prevent excessive erosion.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development
Management concerns:
- The slope is a severe limitation affecting building site development. These soils are poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The depth to bedrock and the slope may interfere with the proper functioning of septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.
- The hazard of erosion is severe on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land.
- Building roads and streets on the contour helps to overcome the slope.
- Selecting the deepest areas of these soils as sites for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock and the slope.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6e
Prime farmland: No
Hydric soil: No

CkE—Calvin-Klinesville channery loams, 25 to 35 percent slopes

Setting

Landscape position: Steep, convex hillsides

Composition

Calvin soil and similar soils: 60 percent
Klinesville soil and similar soils: 30 percent
Dissimilar inclusions: 10 percent

Typical Profile

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Klinesville
Surface layer:
0 to 2 inches—dark reddish brown channery loam

Subsurface layer:
2 to 5 inches—reddish brown very channery loam

Subsoil:
5 to 14 inches—reddish brown very channery loam

Underlying material:
14 to 18 inches—dark reddish brown very channery loam

Bedrock:
18+ inches—dusky red, moderately weathered, fine grained sandstone

Soil Properties and Qualities

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Klinesville
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe

Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- The deep, moderately well drained Hustontown soils and the very deep, moderately well drained Ernest soils on concave footslopes
- The moderately well drained Basher soils on narrow flood plains along streams
- The very shallow Rough soils
- Areas of rock outcrop

Similar soils:
- The moderately deep Berks soils and the shallow Weikert soils, which have a yellowish brown subsoil
- Dekalb and Lehew soils, which have sandier textures throughout
- Soils with slopes of less than 25 percent or more than 35 percent

Use and Management

Uses: Most areas of these Calvin and Klinesville soils are wooded.

Cropland
Suitability: Not suited
Management concerns:
- These soils are not suited to cultivated crops because of the steep slopes, the very severe hazard of erosion, the droughtiness, and the low fertility level.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Erosion is a very severe hazard if the sod is removed by overgrazing.
- The slope makes the operation of conventional equipment used in clipping and applying fertilizer difficult.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects

Management concerns:
- Seedling mortality is a concern because of the droughtiness of these soils, especially on south-facing slopes.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged help to prevent excessive erosion.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development

Management concerns:
- The slope is a severe limitation affecting building site development. These soils are poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The slope and the limited depth to bedrock make these soils generally unsuitable as a site for septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.
- The hazard of erosion is very severe on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land.
- Building roads and streets on the contour helps to overcome the slope.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soil: No

CkF—Calvin-Klinesville channery loams, 35 to 65 percent slopes

Setting

Landscape position: Very steep, convex hillsides

Composition

Calvin soil and similar soils: 45 percent

Klinesville soil and similar soils: 30 percent
Dissimilar inclusions: 25 percent

Typical Profile

Calvin
Surface layer:
0 to 3 inches—dark reddish brown channery loam

Subsoil:
3 to 5 inches—reddish brown channery loam
5 to 18 inches—reddish brown very channery loam

Underlying material:
18 to 26 inches—reddish brown extremely channery loam

Bedrock:
26+ inches—dark reddish brown, moderately weathered, fractured and tilted, fine grained sandstone

Klinesville
Surface layer:
0 to 2 inches—dark reddish brown channery loam

Subsurface layer:
2 to 5 inches—reddish brown very channery loam

Subsoil:
5 to 14 inches—reddish brown very channery loam

Underlying material:
14 to 18 inches—dark reddish brown very channery loam

Bedrock:
18+ inches—dusky red, moderately weathered, fine grained sandstone

Soil Properties and Qualities

Calvin
Drainage class: Well drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Klinesville
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None

Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Reddish shale or fine grained sandstone or siltstone; interbedded in some areas

Minor Components

Dissimilar inclusions:
- The very deep, moderately well drained Hustontown and Ernest soils on concave footslopes
- The very deep Hazleton and Sideling soils on benches and in coves
- The moderately well drained Basher soils on narrow flood plains along streams
- The very shallow Rough soils
- Areas of rock outcrop

Similar soils:
- The moderately deep Berks soils and the shallow Weikert soils, which have a yellowish brown subsoil
- Dekalb and Lehew soils, which have sandier textures throughout
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: Nearly all areas of these Calvin and Klinesville soils are wooded.

Cropland
Suitability: Not suited
Management concerns:
- These soils are unsuited to cultivated crops because of the steep slopes, the very severe hazard of erosion, droughtiness, and the low fertility level

Pasture and Hayland
Suitability: Not suited
Management concerns:
- The very steep slopes and the very severe hazard of erosion make these soils unsuited to pasture and hay production.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- Seedling mortality is a concern because of the droughtiness of these soils, especially on south-facing slopes.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Tree planting should be timed so that seedlings can take advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.

Community Development
Management concerns:
- The very steep slopes and the limited depth to bedrock are severe limitations affecting community development.
- These soils are generally unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soil: No

ClC—Caneyville silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex uplands; mainly on the eastern slope of Tonoloway Ridge

Composition

Caneyville soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

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

Subsoil:
4 to 12 inches—brown and strong brown gravelly silt loam
12 to 24 inches—yellowish red silty clay

Bedrock:
24+ inches—limestone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour)
Available water capacity: Moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Moderate in the subsoil
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral (pH 5.1 to 7.3) in the surface layer and in the upper part of the subsoil and moderately acid to slightly alkaline (pH 5.6 to 7.8) in the lower part

Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Limestone interbedded with thin layers of shale and siltstone

Minor Components

Dissimilar inclusions:
- Small areas of Litz soils that are loamy in the subsoil
- Small areas of the shallow Opequon soils

Similar soils:
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of this Caneyville soil are wooded. Some are used as homesites.

Cropland
Suitability: Poorly suited (better suited to hay and pasture because of the severe hazard of erosion)
Management concerns:
- The hazard of erosion is severe in unprotected areas.
- Solution channels in the limestone bedrock increase the hazard of ground-water pollution caused by applications of pesticides, fertilizers, and manure; runoff from feedlots; and seepage from manure pits.
- An excessive amount of nutrients in manure and fertilizer applications can result in the pollution of ground water and surface water by nutrients.

Management measures:
- Including grasses, legumes, and small grain in crop rotations, applying a system of conservation tillage, growing cover crops and green manure crops, and applying crop residue management help to prevent excessive erosion and to maintain fertility and tilth.
- Designing fertilizer and manure applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.
- Manure should be stored in a properly designed storage facility.
- A system of conservation tillage that leaves crop residue on the surface helps to conserve soil moisture.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- If pastures are overgrazed, erosion is a severe hazard in areas where the plant cover has been destroyed.
- Ponds constructed for livestock water are susceptible to seepage and have a high failure rate.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The clayey subsoil is a limitation affecting the operation of logging equipment during wet periods when the soil is soft.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails when they are no longer being used help to control erosion.

Community Development
Management concerns:
- In many areas hard limestone bedrock may interfere with excavation, including that for roads, septic tank absorption fields, foundations, and sewer lines.
- The depth to bedrock and the slow permeability are severe limitations on sites for septic tank absorption fields.
- Solution channels in the limestone bedrock increase the hazard of ground-water pollution by seepage from septic tank absorption fields.
- The moderate shrink-swell potential is a limitation affecting the construction of buildings.
- Low strength is a severe limitation affecting the construction of roads. Because this soil is soft when wet, the pavement cracks and buckles under heavy loads.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Selecting the deepest areas of this soil as sites for septic tank absorption fields, installing the absorption fields on the contour, pressurizing or enlarging the absorption fields, or installing alternating drainfields help to overcome the limitations in absorption areas.
- Septic tank absorption fields should not be installed in areas that are near limestone rock outcrop or in areas where excavation exposes the limestone bedrock.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Providing a suitable road base that includes the installation of properly designed geotextiles helps to prevent the road damage caused by low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 4e
Prime farmland: No
Hydric soil: No

ClD—Caneyville silt loam, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex uplands; mainly on the western slope of Warm Springs Ridge

Composition

Caneyville soil and similar soils: 85 percent

Dissimilar inclusions: 15 percent

Typical Profile

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

Subsoil:
4 to 12 inches—brown and strong brown gravelly silt loam
12 to 24 inches—yellowish red silty clay

Bedrock:
24+ inches—limestone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour)
Available water capacity: Moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Moderate in the subsoil
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral (pH 5.1 to 7.3) in the surface layer and in the upper part of the subsoil and moderately acid to slightly alkaline (pH 5.6 to 7.8) in the lower part
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Bedrock type: Limestone interbedded with thin layers of shale and siltstone

Minor Components

Dissimilar inclusions:
- The very deep Murrill and Blackthorn soils
- The Litz soils that are loamy in the subsoil
- The shallow Opequon soils

Similar soils:
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 15 percent or more than 25 percent

Use and Management

Uses: Most areas of this Caneyville soil are wooded. Some are used as homesites.

Cropland
Suitability: Not suited
Management concerns:
- Because of the moderately steep slopes and the severe hazard of erosion, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Suited to pasture; not suited to hay
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.

- If pastures are overgrazed, erosion is a severe hazard in areas where the plant cover has been destroyed.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland

Potential productivity: Moderate on south aspects; moderately high on north aspects
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The clayey texture of the subsoil is a limitation affecting the use of logging equipment during wet periods when the soil is soft.
- Seedling mortality is a concern on south-facing slopes.

Management measures:
- The hazard of erosion can be reduced by building logging roads and skid trails on the contour; seeding logging roads, log landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development

Suitability: Poorly suited
Management concerns:
- Because of the slope, this soil is poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- In many areas, hard limestone bedrock may interfere with excavation, including that for roads, septic tank absorption fields, foundations, and sewer lines.
- The depth to bedrock, the slow permeability, and the slope are severe limitations on sites for septic tank absorption fields.
- Solution channels in the limestone bedrock increase the hazard of ground-water pollution by seepage from septic tank absorption fields.
- The moderate shrink-swell potential is a limitation affecting the construction of buildings.
- Low strength is a severe limitation affecting the construction of roads. Because this soil is soft when wet, pavement cracks and buckles under heavy loads.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in most areas.
- Selecting the deepest areas of this soil as sites for septic tank absorption fields, installing the absorption fields on the contour, pressurizing or enlarging the absorption fields, or installing alternating drainfields can help to overcome the limitations in absorption areas.
- Septic tank absorption fields should not be installed in areas that are near limestone rock outcrop or in areas where excavation exposes the limestone bedrock.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Providing a suitable road base that includes the installation of properly designed geotextiles helps to prevent the road damage caused by low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6e
Prime farmland: No
Hydric soil: No

CIE—Caneyville silt loam, 25 to 35 percent slopes

Setting

Landscape position: Steep, convex uplands; mainly on the western slope of Warm Springs Ridge and the eastern slope of Tonoloway Ridge

Composition

Caneyville soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

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

Subsoil:
4 to 12 inches—brown and strong brown gravelly silt loam
12 to 24 inches—yellowish red silty clay

Bedrock:
24+ inches—limestone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour)
Available water capacity: Moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Moderate in the subsoil
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral (pH 5.1 to 7.3) in the surface layer and in the upper part of the subsoil and moderately acid to slightly alkaline (pH 5.6 to 7.8) in the lower part
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Bedrock type: Limestone interbedded with thin layers of shale and siltstone

Minor Components

Dissimilar inclusions:
- The very deep Murrill and Blackthorn soils
- The Litz soils that are loamy in the subsoil
- The shallow Opequon soils
- Small areas of rock outcrop

Similar soils:
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 25 percent or more than 35 percent

Use and Management

Uses: Most areas of this Caneyville soil are wooded. Some are used as homesites.

Cropland
Suitability: Not suited
Management concerns:
- Because of the steep slopes and the very severe hazard of erosion, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- If pastures are overgrazed, erosion is a very severe hazard in areas where the plant cover has been destroyed.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate on south aspects; moderately high on north aspects
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The clayey texture of the subsoil is a limitation affecting the use of logging equipment during wet periods when the soil is soft.
- Seedling mortality is a concern on south-facing slopes.

Management measures:
- The hazard of erosion can be reduced by building logging roads and skid trails on the contour; seeding logging roads, log landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development
Management concerns:
- Because of the slope, this soil is poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- In many areas, hard limestone bedrock may interfere with excavation, including that for roads, septic tank absorption fields, foundations, and sewer lines.
- The limited depth to bedrock, the slow permeability, and the steep slopes make this soil generally unsuitable as a site for septic tank absorption fields.
- The moderate shrink-swell potential is a limitation affecting the construction of buildings.
- Low strength is a severe limitation affecting the construction of roads. Because this soil is soft when wet, pavement cracks and buckles under heavy loads.
- Erosion is a very severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in most areas.

- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Providing a suitable road base that includes the installation of properly designed geotextiles helps to prevent the road damage caused by low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soil: No

CnF—Caneyville silty clay loam, 35 to 65 percent slopes

Setting

Landscape position: Very steep, convex uplands; mainly on the eastern aspect of Tonoloway Ridge

Composition

Caneyville soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 4 inches—brown silty clay loam

Subsoil:
4 to 24 inches—yellowish red silty clay

Bedrock:
24+ inches—limestone

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour)
Available water capacity: Moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Moderate in the subsoil
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral (pH 5.1 to 7.3) in the surface layer and in the upper part of the subsoil and moderately acid to slightly alkaline (pH 5.6 to 7.8) in the lower part
Surface runoff: Very high
Depth to bedrock: 20 to 40 inches
Bedrock type: Limestone interbedded with thin layers of shale and siltstone

Minor Components

Dissimilar inclusions:
- The very deep Murrill and Blackthorn soils

- The Litz soils that are loamy in the subsoil
- The shallow Opequon soils
- Small areas of rock outcrop

Similar soils:
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: Most areas of this Caneyville soil are wooded.

Cropland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes and the very severe hazard of erosion, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; very difficult to manage for pasture
Management concerns:
- Because of the very steep slopes, conventional equipment used in clipping and applying fertilizer cannot be safely operated in areas of this soil.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- If pastures are overgrazed, erosion is a very severe hazard in areas where the plant cover has been destroyed.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate on south aspects; moderately high on north aspects
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- The clayey texture of the subsoil is a limitation affecting the use of logging equipment during wet periods when the soil is soft.
- Seedling mortality is a concern on south-facing slopes.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.

Community Development

Management concerns:

- Because of the very steep slopes, the limited depth to bedrock, and the low strength, this soil generally is unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soil: No

CrB—Clarksburg gravelly silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, concave footslopes downslope from soils underlain by limestone; mostly in the Sir Johns Run watershed

Composition

Clarksburg soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

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

Subsurface layer:
8 to 12 inches—yellowish brown gravelly silt loam

Subsoil:
12 to 22 inches—yellowish brown silty clay loam
22 to 29 inches—yellowish brown silty clay loam with grayish brown redoximorphic features
29 to 42 inches—brown, firm and brittle clay loam with light brownish gray and yellowish brown redoximorphic features

Underlying material:
42 to 65 inches—brown clay loam with yellowish brown and light brownish gray redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour) in the upper part and slow (0.06 to 0.2 inch per hour) in the lower part
Available water capacity: Moderate
Depth to the seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, moderately acid or slightly acid (pH 5.6 to 6.5)
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately deep Litz soils
- The moderately well drained Sideling soils
- The poorly drained Brinkerton soils
- The well drained Murrill soils
- The moderately well drained Lindside soils on flood plains

Similar soils:
- The moderately well drained Ernest soils that are higher in acidity
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Many areas of this Clarksburg soil have been cleared. In these areas, the soil is used for hay and pasture or the acreage is idle land. Other areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- The seasonal wetness may delay tilling and planting in the spring.
- The seasonal high water table and the firm and brittle layer in the subsoil restrict the rooting depth of some plants.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate hazard if the sod is removed by overgrazing.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Grazing should be deferred in spring until the soil is firm.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Plant competition is moderate when openings are made in the canopy.
- Competition from weeds may slow the growth of planted tree seedlings.
- Because this soil is soft when wet, use of logging equipment during wet periods will result in excessive rutting.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The seasonal high water table is the main limitation on sites for buildings, especially buildings with basements.
- The seasonal high water table limits excavation and trafficability and may delay construction activities in winter and spring.
- The seasonal high water table and the slow permeability in the subsoil are severe limitations on sites for septic tank absorption fields.
- The seasonal high water table and low strength are moderate limitations on sites for local roads and streets. Because the soil is soft when wet, the pavement cracks under heavy loads.
- Water may seep from cutbanks during wet periods.
- Erosion is a moderate hazard on construction sites.

Management measures:
- Installing a drainage system around structures that have basements or crawl spaces helps to overcome wetness.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the water table.
- Installing tile drainage lines upslope from the absorption field helps to overcome the wetness.
- Increasing the size of the absorption area and backfilling with gravel help to compensate for the restricted permeability in the subsoil.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

CrC—Clarksburg gravelly silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, concave footslopes that are downslope from soils underlain by limestone; mostly in the Sir Johns Run watershed

Composition

Clarksburg soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

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

Subsurface layer:
7 to 11 inches—yellowish brown gravelly silt loam

Subsoil:
11 to 21 inches—yellowish brown silty clay loam
21 to 28 inches—yellowish brown silty clay loam with grayish brown redoximorphic features
28 to 41 inches—brown, firm and brittle clay loam with light brownish gray and yellowish brown redoximorphic features

Underlying material:
41 to 65 inches—brown clay loam mottled with yellowish brown and light brownish gray

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour) in the upper part and slow (0.06 to 0.2 inch per hour) in the lower part
Available water capacity: Moderate
Depth to the seasonal high water table: 1.5 to 2.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, moderately acid or slightly acid (pH 5.6 to 6.5)
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately deep Litz soils
- The well drained Murrill soils
- The moderately well drained Sideling soils
- Small areas of marl deposits that are associated with limestone springs

Similar soils:
- The moderately well drained Ernest soils that are higher in acidity
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Many areas of this Clarksburg soil have been cleared. In these areas, the soil is used for hay and pasture or the acreage is idle land. Other areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is severe in unprotected areas.
- The seasonal wetness may delay tilling and planting in the spring.
- The seasonal high water table and the firm and brittle layer in the subsoil restrict the rooting depth of some plants.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Grazing should be deferred in spring until the soil is firm.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Plant competition is moderate when openings are made in the canopy.
- Competition from weeds may slow the growth of planted tree seedlings.
- Because this soil is soft when wet, the use of logging equipment during wet periods will result in excessive rutting.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The slope is a limitation affecting community development.
- The seasonal high water table is the main limitation on sites for buildings, especially buildings with basements.
- The seasonal high water table limits excavation and trafficability and may delay construction activities in winter and spring.
- The seasonal high water table and the slow permeability in the subsoil are severe limitations on sites for septic tank absorption fields.
- The seasonal high water table and low strength are moderate limitations on sites for local roads and streets. Because the soil is soft when wet, the pavement cracks under heavy loads.
- Water may seep from cutbanks during wet periods.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Installing a drainage system around structures that have basements or crawl spaces helps to overcome the wetness.
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the water table.
- Installing tile drainage lines upslope from the absorption field helps to overcome the wetness.
- Increasing the size of the absorption area, installing distribution lines on the contour, and backfilling with gravel help to compensate for the restricted permeability in the subsoil.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.

- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

CvB—Clearbrook-Cavode silt loams, 0 to 8 percent slopes

Setting

Landscape position: Nearly level and gently sloping, slightly concave head slopes; mainly along the eastern base of Warm Springs Ridge in the U.S. Route 522 corridor
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to map them separately.

Composition

Clearbrook soil and similar soils: 50 percent
Cavode soil and similar soils: 35 percent
Dissimilar inclusions: 15 percent

Typical Profile

Clearbrook
Surface layer:
0 to 8 inches—olive brown silt loam

Subsoil:
8 to 13 inches—light olive brown channery silty clay loam with strong brown and light grayish brown redoximorphic features
13 to 19 inches—light grayish brown very channery silty clay loam with strong brown and yellowish brown redoximorphic features

Underlying material:
19 to 22 inches—light brownish gray and gray extremely channery silty clay with strong brown redoximorphic features

Bedrock:
22 inches—stratified dark brown and reddish brown, weathered shale

Cavode
Surface layer:
0 to 8 inches—olive brown silt loam

Subsoil:
8 to 12 inches—light olive brown silt loam with yellowish brown and grayish brown redoximorphic features
12 to 23 inches—light olive brown silty clay loam with strong brown and light grayish brown redoximorphic features
23 to 41 inches—gray silty clay with yellowish brown and red redoximorphic features
41 to 51 inches—gray silty clay loam with yellowish brown and red redoximorphic features

Underlying material:
51 to 62 inches—gray very channery silty clay loam with red redoximorphic features

Bedrock:
62 inches—stratified, dark brown and reddish brown, weathered shale

Soil Properties and Qualities

Clearbrook
Drainage class: Somewhat poorly drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour)
Available water capacity: Very low or low
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Slight or moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Weathered shale; rippable in most areas

Cavode
Drainage class: Somewhat poorly drained
Permeability: Slow (0.06 to 0.2 inch per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Slight or moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: High
Depth to bedrock: 40 to 72 inches
Bedrock type: Weathered shale; rippable in most areas

Minor Components

Dissimilar inclusions:
- The well drained Berks soils
- The moderately well drained Buchanan soils
- The poorly drained Dunning soils that are along narrow drainageways and in depressions and are subject to occasional ponding

Similar soils:
- Moderately well drained soils
- Soils with slopes of more than 8 percent

Use and Management

Uses: Many areas of these Clearbrook and Cavode soils are wooded. Some areas have been cleared. In these areas, the soils are used for hay and pasture or the acreage is idle land.

Cropland
Suitability: Suited (better suited to hay and pasture)
Management concerns:
- Erosion is a moderate hazard if cultivated crops are grown.
- The seasonal high water table is near the surface during wet periods. It restricts the rooting depth of crops and delays tillage in the spring.

- The Clearbrook soil is droughty during the growing season because it has a low available water capacity.

Management measures:
- Including grasses and legumes in crop rotations, applying a system of conservation tillage, growing cover crops, and applying crop residue management help to prevent erosion and to maintain fertility and tilth.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Grazing during wet periods results in surface compaction, poor tilth, and damage to the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:
- During wet periods these soils are soft and will not support heavy logging equipment.
- Plant competition is severe when openings are made in the canopy.
- Competition from undesirable plants may slow the growth of planted tree species.

Management measures:
- Logging should be deferred during wet periods.
- Adequately preparing the site helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The wetness is a severe limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- The depth to bedrock and the slow permeability are severe limitations on sites for septic tank absorption fields in areas of the Clearbrook soil.
- The slow permeability is a severe limitation on sites for septic tank absorption fields in areas of the Cavode soil.
- Because the Clearbrook and Cavode soils are soft when wet, pavement may crack and buckle under heavy loads.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the water table.
- A better suited soil should be considered as a site for septic tank absorption fields.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3w
Prime farmland: No
Hydric soil: No

Cz—Combs fine sandy loam

Setting

Landscape position: Nearly level flood plains; along the Potomac River

Composition

Combs soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 10 inches—dark brown fine sandy loam

Subsurface layer:
10 to 20 inches—dark brown fine sandy loam

Subsoil:
20 to 53 inches—dark yellowish brown fine sandy loam

Underlying material:
53 to 65 inches—brown to dark brown fine sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 3.5 to more than 6 feet
Flooding: Frequency—occasional (5 to 50 percent chance of flooding in any year); duration—brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, moderately acid to neutral (pH 5.6 to 7.3)
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:
- The moderately well drained Lindside soils and the poorly drained Melvin soils in sloughs and high water channels
- Soils that are on natural levees and have loamy sand or sand textures throughout

Similar soils:
- The well drained Tioga soils that do not have the thick, dark surface layer that is typical of the Combs soil
- Soils with slopes of more than 3 percent
- Soils that have a surface layer of loam

Use and Management

Uses: Most areas of this Combs soil are used for cultivated crops or hay. Some are used as pasture. A few small areas are wooded.

Cropland

Suitability: Well suited

Management concerns:

- This soil is suited to cultivated crops, which can be grown year after year if the soil is properly protected.
- An excessive amount of nutrients in manure and fertilizer applications can result in the pollution of surface water by nutrients.
- The flooding occasionally damages crops or delays field operations.
- This soil is subject to streambank erosion in many areas.

Management measures:

- Conservation tillage, winter cover crops, and crop residue management help to maintain soil tilth and fertility and to control water erosion.
- Designing fertilizer and manure applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.
- Leaving a border of trees along streams helps to prevent streambank erosion and protect water quality.

Pasture and Hayland

Suitability: Well suited

Management concerns:

- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.
- The flooding occasionally deposits debris on the grassland.

Management measures:

- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected areas.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland

Potential productivity: Moderately high

Management concerns:

- Competition from undesirable plant species may slow the growth of planted tree seedlings.

Management measures:

- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:

- Because of the flooding, this soil is not suitable as a site for septic tank absorption fields or buildings.
- The flooding is a severe limitation on sites for local roads and streets.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on raised fill material helps to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

DkC—Dekalb channery sandy loam, 3 to 15 percent slopes, extremely stony

Setting

Landscape position: Gently sloping and strongly sloping, convex ridgetops; mainly on Sleepy Creek and Cacapon Mountains and Sideling Hill

Composition

Dekalb soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 1 inch—organic duff from hardwood leaf litter
1 to 4 inches—very dark brown channery sandy loam

Subsurface layer:
4 to 6 inches—grayish brown very channery loamy sand

Subsoil:
6 to 15 inches—yellowish brown very channery sandy loam
15 to 24 inches—yellowish brown extremely flaggy sandy loam

Bedrock:
24 inches—fractured, gray sandstone

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate or severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Very low
Depth to bedrock: 20 to 40 inches
Bedrock type: Mainly hard, acid sandstone; in places interbedded with shale and siltstone

Minor Components

Dissimilar inclusions:
- Moderately well drained soils in shallow depressions
- Small areas of the very deep Hazleton soils
- The moderately well drained Buchanan soils on concave head slopes
- Small areas of sandstone outcrops
- Very rubbly areas with more than 50 percent of the surface covered with stones

Similar soils:
- Schaffenaker soils that have loamy sand or sand textures throughout
- Berks soils that have loam or silt loam textures in the fine-earth fraction
- Lehew soils that have reddish brown colors in the subsoil
- Soils that are 10 to 20 inches deep over bedrock
- Soils with 15 to 25 percent slopes
- Soils with slopes of less than 3 percent
- Rubbly soils with 15 to 50 percent of the surface covered with stones
- Soils with less than 3 percent of the surface covered with stones

Use and Management

Uses: Most areas of this Dekalb soil are wooded.

Cropland
Suitability: Not suited
Management concerns:
Because of the stones on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction and increases the runoff rate and the hazard of erosion.
- The stones on the soil surface make the operation of conventional equipment used in clipping and applying fertilizer difficult.
- The droughtiness of this soil limits forage production during midsummer.
- In areas of this soil, water for livestock is scarce and ponds constructed for livestock water are prone to seepage.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Large stones on the soil surface can hinder harvesting operations and damage equipment.
- Seedling mortality is a concern because of the limited depth to bedrock, the low natural fertility, and the droughtiness of this soil.
- Stones on the soil surface and other rock fragments interfere with the planting of seedlings.
- Because the depth to bedrock restricts the penetration of roots, trees may be uprooted by strong winds or during periods of heavy snowfall.

Management measures:
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed to take full advantage of spring rains.

Community Development
Management concerns:
- The depth to bedrock is the main limitation affecting building site development, septic tank absorption fields, excavation, and local roads and streets. In addition, the bedrock is too hard to be excavated with conventional earthmoving equipment in most areas.
- Large stones may interfere with the operation of construction equipment.
- Establishing and maintaining vegetation on roadbanks is difficult on this droughty soil, especially on south-facing slopes.
- Large stones on the soil surface may interfere with the establishment of lawns and landscaping.
- The hazard of erosion is moderate or severe on construction sites.

Management measures:
- Building on the bedrock and adding extra fill when landscaping may be preferable to excavating the bedrock.
- Selecting areas of the deepest soils as sites for septic tank absorption fields, installing the absorption field on the contour, and enlarging the absorption field help to overcome the depth to bedrock.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

DrE—Dekalb-Rock outcrop complex, 15 to 25 percent slopes, rubbly

Setting

Landscape position: Narrow ridges; mainly on Sleepy Creek, Cacapon, and Sideling Hill Mountains (fig. 7)
Note: The ridges have exposed “hogbacks” of sandstone outcrops. The Dekalb soil and the Rock outcrop are so intermingled on the landscape that it was not practical to map them separately.

Composition

Dekalb soil and similar soils: 70 percent
Rock outcrop: 15 percent
Dissimilar inclusions: 15 percent

Typical Profile

Dekalb
Surface layer:
0 to 1 inch—bouldery organic duff from hardwood leaf litter
1 to 3 inches—very dark gray channery sandy loam

Figure 7.—An area of Dekalb-Rock outcrop complex, 15 to 25 percent slopes, rubbly, on the crest of Sideling Hill Mountain.

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

Subsoil:
6 to 24 inches—brownish yellow very channery sandy loam

Underlying material:
24 to 34 inches—yellowish brown extremely flaggy sandy loam

Bedrock:
34 inches—fractured, gray sandstone

Rock outcrop

The Rock outcrop consists of exposed sandstone bedrock. It forms nearly vertical cliffs in some areas.

Soil Properties and Qualities

Dekalb
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None

Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe or very severe
Percentage of the surface covered by rock fragments: 15 to 50 percent covered with rocks and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Mainly acid sandstone; in places interbedded with shale and siltstone

Minor Components

Dissimilar inclusions:
- The very deep Hazleton soils
- The very deep Vanderlip soils, which have loamy sand or sand textures throughout

Similar soils:
- The well drained Berks soils
- Schaffenaker soils, which have loamy sand or sand textures throughout
- Shallow soils that are less than 20 inches deep over bedrock
- Soils with slopes of 8 to 15 percent or more than 25 percent

Use and Management

Uses: Areas of this map unit are wooded.

Cropland
Suitability: Not suited
Management concerns:
- Because of the slope, the stones and boulders on the soil surface, and the Rock outcrop, this map unit is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the slope, the stones and boulders on the soil surface, and the Rock outcrop, this soil is not suited to pasture and hay.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Seedling mortality is a concern because of the limited depth to bedrock, the low natural fertility, and the droughtiness of this Dekalb soil.
- The stones and boulders on the soil surface can hinder harvesting operations and damage equipment.
- Short escarpments within this map unit may interfere with the use of harvesting equipment.
- Because the depth to bedrock restricts the penetration of roots, trees may be uprooted by strong winds or during periods of heavy snowfall.
- The trees produced on these soils generally are of low commercial value.

Management measures:
- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Rock outcrops should be considered when planning road locations and landing sites.

- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed to take full advantage of spring rains.

Community Development

Management concerns:
- This map unit is generally unsuited to community development.
- The moderately steep or steep slopes, the common areas of sandstone rock outcrop, and the depth to hard bedrock are the main limitations affecting building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: Dekalb—7s; Rock outcrop—8s
Prime farmland: No
Hydric soil: No

DsB—Downsville gravelly loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, convex, slightly dissected, old river terraces; high above the Potomac River

Composition

Downsville soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown gravelly loam

Subsoil:
10 to 18 inches—yellowish brown gravelly loam
18 to 30 inches—strong brown very gravelly loam
30 to 41 inches—yellowish red very gravelly clay loam
41 to 99 inches—red very gravelly sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Small areas of the moderately well drained Monongahela soils

- Small areas of the moderately deep Berks soils
- Small areas of the moderately deep Calvin soils

Similar soils:
- The well drained Allegheny soils
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of this Downsville soil are cleared and are used for cultivated crops or hay. Some are used for community development. A few are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- In some areas, the gravel and cobbles in the surface layer may interfere with the use of tillage and planting equipment and with some types of harvesting equipment.

Management measures:
- Conservation tillage, contour farming, cover crops, a cropping sequence that includes grasses and legumes, and crop residue management help to control erosion and to maintain fertility and tilth.
- Designing fertilizer applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate hazard if the plant cover is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Competition from weeds may slow the growth of planted tree seedlings.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The gravel and cobbles in the surface layer may interfere with the establishment of lawns and landscaping.
- Erosion is a moderate hazard on construction sites.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation of streams.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

DsC—Downsville gravelly loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, slightly dissected river terraces; high above the Potomac River

Composition

Downsville soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

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

Subsoil:
7 to 15 inches—yellowish brown gravelly loam
15 to 27 inches—strong brown very gravelly loam
27 to 38 inches—yellowish red very gravelly clay loam
38 to 99 inches—red very gravelly sandy clay loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Small areas of the moderately well drained Monongahela soils
- Small areas of the moderately deep Berks soils
- Small areas of the moderately deep Calvin soils

Similar soils:
- The well drained Allegheny soils
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most of the acreage of this Downsville soil is wooded. Some areas are used for community development. Other areas have been cleared and are used for cultivated crops, hay and pasture, or orchards.

Cropland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in unprotected areas.
- In some areas, the gravel and cobbles in the surface layer may interfere with the use of tillage and planting equipment and with some types of harvesting equipment.

Management measures:
- Conservation tillage, contour farming, cover crops, a cropping sequence that includes grasses and legumes, and crop residue management help to control erosion and to maintain fertility and tilth.
- Designing fertilizer applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe hazard if the plant cover is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Competition from weeds may slow the growth of planted tree seedlings.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The slope is a moderate limitation affecting most urban uses. Land shaping is necessary in some areas.
- The gravel and cobbles in the surface layer may interfere with the establishment of lawns and landscaping.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land.
- Septic tank absorption fields should be installed on the contour.

- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation of streams.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

Dz—Dunning silty clay loam

Setting

Landscape position: Level, slightly concave flood plains and streamheads

Composition

Dunning soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 9 inches—very dark gray silty clay loam with reddish brown redoximorphic features
9 to 12 inches—very dark grayish brown silty clay loam with reddish brown redoximorphic features

Subsoil:
12 to 28 inches—gray clay with reddish brown and strong brown redoximorphic features
28 to 46 inches—gray silty clay with reddish brown and grayish brown redoximorphic features

Underlying material:
46 to 65 inches—gray silty clay stratified with light yellowish brown and dark gray gravelly sandy loam, silt loam, and clay loam

Soil Properties and Qualities

Drainage class: Poorly drained or very poorly drained
Permeability: Slow (0.06 to 0.2 inch per hour) in the surface layer and subsoil and slow or moderate (0.06 inch to 2.0 inches per hour) in the underlying material
Available water capacity: High
Seasonal high water table: Within a depth of 0.5 foot
Flooding: Frequency—occasional (5 to 50 percent chance in any year); duration—brief
Shrink-swell potential: Moderate
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, moderately acid to slightly alkaline throughout (pH 5.6 to 7.8)
Surface runoff: Negligible; some areas occasionally ponded for long periods of time
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately well drained Lindside soils

- The somewhat poorly drained Cavode soils that are not subject to flooding

Similar soils:
- The poorly drained Melvin and Holly soils that do not have the clayey subsoil typical of the Dunning soil
- Soils that do not have the thick, dark surface layer typical of the Dunning soil
- Soils that are 40 to 60 inches deep over bedrock

Use and Management

Uses: Most areas of this Dunning soil are wooded. In a few small areas, the soil has been cleared and is used for pasture and hay or the acreage is idle land. Most of the areas that have not been drained form wetlands. A Federal permit may be required before these areas can be disturbed.

Cropland
Suitability: Poorly suited (better suited to hay or pasture)
Management concerns:
- Most climatically adapted crops cannot be grown unless an adequate drainage system is installed.
- The seasonal wetness may delay tilling and planting in the spring.
- The flooding occasionally delays field operations or damages crops.
- This soil is subject to streambank erosion in some areas.

Management measures:
- Conservation tillage, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving a buffer zone of trees along streams helps to prevent excessive erosion on streambanks.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Grazing during wet periods results in surface compaction, poor tilth, and damage to the sod.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- The hay and pasture species that can withstand the seasonal wetness should be selected for seeding.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- Because of the wetness, equipment can only be used during the dry summer months and in winter when the soil is frozen.
- The seasonal high water table may restrict the rooting depth of some trees, resulting in a high seedling mortality rate and windthrow damage.

- Competition from weeds may slow the growth of planted tree seedlings.
- Plant competition is severe when openings are made in the canopy.

Management measures:
- The addition of roadfill and gravel is needed on sites for year-round logging roads.
- The tree species that can withstand the seasonal wetness should be selected for planting.
- Windthrow can be minimized by harvest methods that do not leave the remaining trees widely spaced.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- Because of the flooding, the ponding, and the wetness, this soil is not suited to building site development.
- Because of the flooding, the wetness, and the slow permeability, this soil is not suitable as a site for septic tank absorption fields.
- The flooding, low strength, and the wetness are severe limitations affecting the construction of local roads and streets.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on raised fill material and installing a drainage system help to overcome the limitations affecting local roads and streets.

Interpretive Groups

Land capability classification: 4w
Prime farmland: No
Hydric soil: Yes

ErB—Ernest silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, slightly concave footslopes and toeslopes and convex alluvial/colluvial fans at the mouth of hollows; mainly along Sleepy Creek and its tributaries

Composition

Ernest soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 7 inches—brown silt loam

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

Subsoil:
13 to 27 inches—brownish yellow channery silty clay loam with light gray redoximorphic features
27 to 43 inches—strong brown, firm and brittle channery silty clay loam with light gray redoximorphic features
43 to 65 inches—brown, firm and brittle channery silt loam with light gray and reddish yellow redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour) above the firm layer in the subsoil and moderately slow or slow (0.06 to 0.6 inch per hour) in the firm layer
Available water capacity: Moderate
Depth to the seasonal high water table: 1.0 to 3.0 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The poorly drained Brinkerton soils in depressions and swales
- The moderately deep, well drained Berks soils
- The moderately deep, somewhat poorly drained Clearbrook soils
- The moderately well drained Philo soils and the poorly drained Holly soils that are along narrow drainageways and are subject to flooding

Similar soils:
- The moderately well drained Monongahela soils
- The moderately well drained Buchanan soils
- The moderately well drained Sideling soils
- The Hustontown soils that have a reddish brown subsoil
- Soils that have a channery or gravelly surface layer
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of this Ernest soil have been cleared and are used for hay and pasture or as homesites. A few areas are used for crops. Some areas are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some crops.
- The wetness may delay planting in the spring.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.

- Erosion is a moderate hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some trees, resulting in windthrow damage.
- Because this soil is soft when wet, the use of logging equipment during wet periods will result in excessive rutting.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The seasonal high water table is the main limitation affecting building site development and septic tank absorption fields.
- The slow permeability is an additional limitation on sites for septic tank absorption fields.
- Low strength is a limitation on sites for local roads and streets. Because the soil is soft when wet, pavement may crack under heavy loads.
- Erosion is a moderate hazard on construction sites.

Management measures:
- Installing a drainage system around buildings with basements or crawl spaces helps to overcome the wetness.
- Installing tile drainage lines upslope from absorption fields helps to overcome the wetness.
- Enlarging absorption fields and installing distribution lines on the contour help to overcome the restricted permeability in the subsoil.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 2e
Prime farmland: No
Hydric soil: No

ErC—Ernest silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, slightly concave footslopes and toeslopes and convex alluvial/colluvial fans at the mouth of hollows; mainly along Sleepy Creek and its tributaries

Composition

Ernest soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsurface layer:
6 to 12 inches—light yellowish brown silt loam

Subsoil:
12 to 26 inches—brownish yellow channery silty clay loam with light gray redoximorphic features
26 to 42 inches—strong brown, firm and brittle channery silty clay loam with light gray redoximorphic features
42 to 65 inches—brown, firm and brittle channery silt loam with light gray and reddish yellow redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour) above the firm layer in the subsoil and moderately slow or slow (0.06 to 0.6 inch per hour) in the firm layer
Available water capacity: Moderate
Depth to the seasonal high water table: 1.0 to 3.0 feet
Flooding: None
Shrink-swell potential: Moderate
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately deep, well drained Berks soils
- The excessively drained Rushtown soils
- The moderately deep, somewhat poorly drained Clearbrook soils
- The poorly drained Brinkerton soils along drainageways

Similar soils:
- The moderately well drained Monongahela soils
- The moderately well drained Buchanan soils
- The moderately well drained Sideling soils
- The Hustontown soils that are reddish brown in the subsoil
- Soils with a channery or gravelly surface layer
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of this Ernest soil have been cleared and are used for hay and pasture or as homesites. A few areas are used for crops. Some are wooded.

Cropland

Suitability: Suited

Management concerns:

- The hazard of erosion is severe in unprotected areas.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some crops.
- The wetness may delay planting in the spring.

Management measures:

- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:

- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:

- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:

- Erosion is a severe hazard on logging roads and skid trails.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some trees, which increases the windthrow hazard.
- Because this soil is soft when wet, the use of logging equipment during wet periods will result in excessive rutting.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:

- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:

- The seasonal high water table is the main limitation affecting building site development and septic tank absorption fields.
- The slope is a limitation affecting community development. It increases the hazard of erosion and the extent of excavation required during the construction of roads and buildings.

- The slow permeability is an additional limitation on sites for septic tank absorption fields.
- Low strength is a limitation on sites for local roads and streets. Because the soil is soft when wet, pavement may crack under heavy loads.
- Erosion is a severe hazard on construction sites.

Management measures:
- Installing a drainage system around buildings with basements or crawl spaces helps to overcome the wetness.
- Installing tile drainage lines upslope from absorption fields helps to overcome the wetness.
- Increasing the size of absorption fields and installing distribution lines on the contour help to compensate for the restricted permeability in the subsoil.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by low strength.
- Building roads and streets on the contour helps to overcome the slope.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

HaE—Hazleton-Dekalb complex, 15 to 35 percent slopes, extremely stony

Setting

Landscape position: Moderately steep or steep hillsides; mainly on Cacapon Mountain, Tonoloway Ridge, Sideling Hill, and Purslane Mountain; Hazleton—linear or concave, middle and lower parts of hillsides; Dekalb—convex shoulder slopes, nose slopes, and the upper part of hillsides
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Hazleton soil and similar soils: 45 percent
Dekalb soil and similar soils: 40 percent
Dissimilar inclusions: 15 percent

Typical Profile

Hazleton
Surface layer:
0 to 2 inches—extremely stony, organic duff from hardwood leaf litter
2 to 5 inches—very dark brown channery loam

Subsurface layer:
5 to 12 inches—dark yellowish brown channery sandy loam

Subsoil:
12 to 16 inches—yellowish brown very channery loam
16 to 38 inches—strong brown very channery loam
38 to 49 inches—strong brown very channery sandy loam

Underlying material:
49 to 65 inches—strong brown very channery sandy loam

Dekalb
Surface layer:
0 to 1 inch—extremely stony, organic duff from hardwood leaf litter
1 to 4 inches—very dark brown channery sandy loam

Subsurface layer:
4 to 6 inches—grayish brown very channery loamy sand

Subsoil:
6 to 15 inches—yellowish brown very channery sandy loam
15 to 24 inches—brown very channery sandy loam

Bedrock:
24 inches—fractured, gray sandstone

Soil Properties and Qualities

Hazleton
Drainage class: Well drained
Permeability: Moderately rapid or rapid (2.0 to 20 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid or strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: More than 60 inches
Bedrock type: Interbedded, acid sandstone, shale, and siltstone

Dekalb
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Mainly acid sandstone; interbedded with shale and siltstone in some areas

Minor Components

Dissimilar inclusions:
- The moderately well drained Buchanan soils, which are on the less sloping benches and the lower part of hillsides

- Very rubbly soils that have more than 50 percent of their surface covered with stones and boulders
- Areas of rock outcrop

Similar soils:
- The well drained Berks soils, which are on nose slopes and are underlain by shale
- The well drained, reddish Calvin soils on convex nose slopes
- Soils with slopes of less than 15 percent or more than 35 percent
- Areas where stones cover less than 3 percent of the surface
- Rubbly soils that have 15 to 50 percent of their surface covered with stones and boulders

Use and Management

Uses: Most areas of these Hazleton and Dekalb soils are wooded.

Cropland
Suitability: Not suited
Management concerns:
- Because of the steep slopes and the stones on the surface, these soils are not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- The slope and the stones and boulders on the soil surface make the operation of conventional equipment used in clipping and applying fertilizer difficult.
- Overgrazing causes surface compaction and increases the runoff rate and the hazard of erosion.
- If pastures are overgrazed, erosion is a very severe hazard in areas where the plant cover has been destroyed.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The large stones on the soil surface can hinder harvesting operations and damage equipment.
- Seedling mortality is a concern in areas of the droughty Dekalb soil, especially on south aspects.
- Competition from weeds may slow the growth of planted tree seedlings in areas of the Hazleton soil.
- Because the bedrock restricts the growth of roots, trees may be uprooted by strong winds or during periods of heavy snowfall, especially in areas of the Dekalb soil.

Management measures:
- The hazard of erosion can be reduced by building logging roads and skid trails on the contour; seeding logging roads, log landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.

- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Adequately preparing the site helps to control the initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The slope is a severe limitation on sites for buildings, septic tank absorption fields, and local roads and streets. Extensive land shaping is necessary in most areas.
- The depth to hard bedrock is a severe limitation in areas of the Dekalb soil. In many areas, the bedrock has to be blasted before it can be excavated.
- Erosion is a very severe hazard on construction sites.

Management measures:
- Selecting areas of the very deep Hazleton soil as a site for septic tank absorption fields, installing distribution lines on the contour, selecting the less sloping areas as sites for absorption fields, and land shaping help to overcome the limitations in absorption areas.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in most areas.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

HaF—Hazleton-Dekalb complex, 35 to 65 percent slopes, extremely stony

Setting

Landscape position: Very steep mountainsides; mainly on Third Hill Mountain, Sleepy Creek Mountain, and Tonoloway Ridge; Hazleton—linear or concave, middle and lower parts of hillsides; Dekalb—convex shoulder slopes, nose slopes, and the upper part of hillsides
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Hazleton soil and similar soils: 55 percent
Dekalb soil and similar soils: 25 percent
Dissimilar inclusions: 20 percent

Typical Profile

Hazleton

Surface layer:
0 to 2 inches—extremely stony, organic duff from hardwood leaf litter
2 to 5 inches—very dark brown channery loam

Subsurface layer:
5 to 12 inches—dark yellowish brown channery sandy loam

Subsoil:
12 to 16 inches—yellowish brown very channery loam
16 to 38 inches—strong brown very channery loam
38 to 49 inches—strong brown very channery sandy loam

Underlying material:
49 to 65 inches—strong brown very channery sandy loam

Dekalb
Surface layer:
0 to 1 inch—extremely stony, organic duff from hardwood leaf litter
1 to 4 inches—very dark brown channery sandy loam

Subsurface layer:
4 to 6 inches—grayish brown very channery loamy sand

Subsoil:
6 to 15 inches—yellowish brown very channery sandy loam
15 to 24 inches—brown very channery sandy loam

Bedrock:
24 inches—fractured, gray sandstone

Soil Properties and Qualities

Hazleton
Drainage class: Well drained
Permeability: Moderately rapid or rapid (2.0 to 20 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: More than 60 inches
Bedrock type: Interbedded, acid sandstone, shale, and siltstone

Dekalb
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches

Bedrock type: Mainly acid sandstone; interbedded with shale and siltstone in some areas

Minor Components

Dissimilar inclusions:
- The moderately well drained Buchanan and Sideling soils, which are on the less sloping benches and the lower part of the mountainsides
- Very rubbly soils that have more than 50 percent of their surface covered with stones and boulders
- Areas of rock outcrop

Similar soils:
- The well drained Berks soils
- The reddish, well drained Calvin soils
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: Most areas of these Hazleton and Dekalb soils are wooded.

Cropland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes and the stones on the surface, these soils are not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the severe hazard of erosion, and the stones on the surface, these soils are not suited to pasture or hay.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- The large stones on the soil surface can hinder harvesting operations and damage equipment.
- Seedling mortality is a concern in areas of the droughty Dekalb soil, especially on south aspects.
- Because the bedrock restricts the growth of roots, trees may be uprooted by strong winds or during periods of heavy snowfall, especially in areas of the Dekalb soil.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.

- Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development
Management concerns:
- The very steep slopes and the limited depth to bedrock in areas of the Dekalb soils are severe limitations affecting community development.
- The Hazleton and Dekalb soils are generally unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

HdF—Hazleton-Dekalb-Rock outcrop complex, 35 to 65 percent slopes, rubbly

Setting

Landscape position: Very steep mountainsides; mainly the eastern aspects of Cacapon Mountain; Hazleton—linear or concave, middle and lower parts of mountainsides; Dekalb—convex shoulder slopes and nose slopes
Note: The two soils and the Rock outcrop occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Hazleton soil and similar soils: 55 percent
Dekalb soil and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar inclusions: 5 percent

Typical Profile

Hazleton
Surface layer:
0 to 2 inches—bouldery, organic duff from hardwood leaf litter
2 to 5 inches—very dark brown channery sandy loam

Subsurface layer:
5 to 12 inches—dark yellowish brown channery sandy loam

Subsoil:
12 to 16 inches—yellowish brown very channery sandy loam
16 to 49 inches—strong brown very channery sandy loam

Underlying material:
49 to 65 inches—strong brown very channery loamy sand

Dekalb
Surface layer:
0 to 1 inch—bouldery, organic duff from hardwood leaf litter
1 to 4 inches—very dark brown channery sandy loam

Subsurface layer:
4 to 6 inches—grayish brown very channery loamy sand

Subsoil:
6 to 15 inches—yellowish brown very channery sandy loam
15 to 24 inches—brown very channery sandy loam

Bedrock:
24 inches—fractured, gray sandstone

Rock outcrop

The Rock outcrop occurs as areas of exposed sandstone bedrock. In some areas it forms nearly vertical cliffs.

Soil Properties and Qualities

Hazleton
Drainage class: Well drained
Permeability: Moderately rapid or rapid (2.0 to 20 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 15 to 50 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Very low
Depth to bedrock: More than 60 inches
Bedrock type: Interbedded, acid sandstone, shale, and siltstone

Dekalb
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Mainly acid sandstone; interbedded with shale and siltstone in some areas

Minor Components

Dissimilar inclusions:
- The moderately well drained Buchanan and Sideling soils on the less sloping benches and the lower part of mountainsides

Similar inclusions:
- The well drained Berks soils
- The somewhat excessively drained Schaffenaker soils
- The somewhat excessively drained Vanderlip soils
- Extremely stony areas where stones and boulders cover 3 to 15 percent of the surface

Use and Management

Uses: All areas of this map unit are wooded. Many areas are in Cacapon State Park and are used for recreational activities.

Cropland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the Rock outcrop, and the stones and boulders on the surface, this map unit is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the severe hazard of erosion, and the stones on the soil surface, this map unit is not suited to pasture or hay.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- The large stones and boulders on the soil surface can hinder harvesting operations and damage equipment.
- The Rock outcrop may interfere with the use of harvesting equipment.
- Seedling mortality is a concern in areas of the droughty Dekalb soil, especially on south aspects.
- Because the bedrock restricts the growth of roots, trees may be uprooted by strong winds or during periods of heavy snowfall, especially in areas of the Dekalb soil.

Management measures:
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- The Rock outcrop should be considered when planning the location of roads and log landings.
- Because of the stones and boulders on the soil surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development
Management concerns:
- The very steep slopes, the Rock outcrop, the stones and boulders on the soil surface, and the limited depth to bedrock in areas of the Dekalb soil are severe limitations affecting community development.
- This map unit is generally unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: Hazleton and Dekalb—7s; Rock outcrop—8s
Prime farmland: No
Hydric soil: No

HeF—Hazleton-Dekalb-Rock outcrop complex, 35 to 65 percent slopes, very rubbly

Setting

Landscape position: Very steep mountainsides; mainly on the western aspect of Cacapon Mountain; Hazleton—linear or concave, middle and lower parts of mountainsides; Dekalb—convex shoulder slopes and nose slopes
Note: The two soils and the Rock outcrop occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Hazleton soil and similar soils: 55 percent
Dekalb soil and similar soils: 25 percent
Rock outcrop: 15 percent
Dissimilar inclusions: 5 percent

Typical Profile

Hazleton
Surface layer:
0 to 2 inches—extremely stony, organic duff from hardwood leaf litter
2 to 5 inches—very dark brown channery sandy loam

Subsurface layer:
5 to 12 inches—dark yellowish brown channery sandy loam

Subsoil:
12 to 16 inches—yellowish brown very channery sandy loam
16 to 49 inches—strong brown very channery sandy loam

Underlying material:
49 to 65 inches—strong brown very channery loamy sand

Dekalb
Surface layer:
0 to 1 inch—extremely stony, organic duff from hardwood leaf litter
1 to 4 inches—very dark brown channery sandy loam

Subsurface layer:
4 to 6 inches—grayish brown very channery loamy sand

Subsoil:
6 to 15 inches—yellowish brown very channery sandy loam
15 to 24 inches—brown very channery sandy loam

Bedrock:
24 inches—fractured, gray sandstone

Rock outcrop

The Rock outcrop occurs as areas of exposed sandstone bedrock. In some areas it forms nearly vertical cliffs.

Soil Properties and Qualities

Hazleton
Drainage class: Well drained
Permeability: Moderately rapid or rapid (2.0 to 20 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 50 to 90 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Very low
Depth to bedrock: More than 60 inches
Bedrock type: Interbedded, acid sandstone, shale, and siltstone

Dekalb
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 50 to 90 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Mainly acid sandstone; interbedded with shale and siltstone in some areas

Minor Components

Dissimilar inclusions:
- The moderately well drained Buchanan and Sideling soils on the less sloping benches and the lower part of mountainsides

Similar soils:
- The well drained Berks soils
- The somewhat excessively drained Weikert soils
- The somewhat excessively drained Schaffenaker soils
- The somewhat excessively drained Vanderlip soils
- Areas of rubble land that support no vegetation and where stones and boulders cover 100 percent of the surface
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: All areas of this map unit are wooded. Many areas are in Cacapon State Park and are used for recreational activities.

Cropland
Suitability: Not suited

Management concerns:
• Because of the very steep slopes, the Rock outcrop, and the very rubbly surface, this map unit is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
• Because of the very steep slopes, the Rock outcrop, and the very rubbly surface, this map unit is not suited to hay or pasture.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects
Management concerns:
• Erosion is a severe hazard on logging roads and skid trails.
• Operating logging equipment is hazardous because of the very steep slopes.
• The large stones and boulders on the soil surface can hinder harvesting operations and damage equipment.
• The Rock outcrop may interfere with the use of harvesting equipment.
• Seedling mortality is a concern in areas of the droughty Dekalb soil, especially on south aspects.
• Because the bedrock restricts the growth of roots, trees may be uprooted by strong winds or during periods of heavy snowfall, especially in areas of the Dekalb soil.
Management measures:
• Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
• Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged help to prevent excessive erosion.
• Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
• Logging roads should be designed so that their grade is less than 15 percent whenever possible.
• The Rock outcrop should be considered when planning the location of roads and log landings.
• Because of the stones and boulders on the soil surface, wheeled skidders with high clearance should be operated at a reduced speed over carefully chosen routes.
• Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
• Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development
Management concerns:
• The very steep slopes, the Rock outcrop, the stones and boulders on the soil surface, and the limited depth to bedrock in areas of the Dekalb soil are severe limitations affecting community development.
• These soils are generally unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 8s
Prime farmland: No
Hydric soils: No

HIF—Hazleton-Lehew-Dekalb complex, 35 to 65 percent slopes, extremely stony

Setting

Landscape position: Very steep mountainsides; mainly on Sleepy Creek Mountain, Sideling Hill, and Purslane Mountain; Hazleton—linear or concave, middle and lower parts of mountainsides; Lehew—nose slopes and the upper part of mountainsides; Dekalb—convex shoulder slopes

Note: The three soils occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Hazleton soil and similar soils: 50 percent
Lehew soil and similar soils: 20 percent
Dekalb soil and similar soils: 15 percent
Dissimilar inclusions: 15 percent

Typical Profile

Hazleton
Surface layer:
0 to 2 inches—extremely stony, organic duff from hardwood leaf litter
2 to 5 inches—very dark brown channery loam

Subsurface layer:
5 to 12 inches—dark yellowish brown channery sandy loam

Subsoil:
12 to 16 inches—yellowish brown very channery loam
16 to 38 inches—strong brown very channery loam
38 to 49 inches—strong brown very channery sandy loam

Underlying material:
49 to 65 inches—strong brown very channery sandy loam

Lehew
Surface layer:
0 to 0.5 inch—extremely stony, organic duff from hardwood leaf litter
0.5 inch to 4 inches—dark brown channery fine sandy loam

Subsurface layer:
4 to 6 inches—brown and dark brown very channery fine sandy loam

Subsoil:
6 to 18 inches—reddish brown channery fine sandy loam
18 to 29 inches—reddish brown very channery sandy loam

Underlying material:
29 to 35 inches—dark reddish brown very channery sandy loam

Bedrock:
35 inches—fractured, reddish brown, fine grained sandstone

Dekalb
Surface layer:
0 to 1 inch—extremely stony, organic duff from hardwood leaf litter
1 to 4 inches—very dark brown channery sandy loam

Subsurface layer:
4 to 6 inches—grayish brown very channery loamy sand

Subsoil:
6 to 15 inches—yellowish brown very channery sandy loam
15 to 24 inches—brown very channery sandy loam

Bedrock:
24 inches—fractured, gray sandstone

Soil Properties and Qualities

Hazleton
Drainage class: Well drained
Permeability: Moderately rapid or rapid (2.0 to 20 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: More than 60 inches
Bedrock type: Interbedded, acid sandstone, shale, and siltstone

Lehew
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid or rapid (2.0 to 20 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Mainly reddish brown, acid sandstone; interbedded with shale and siltstone in some places

Dekalb
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low

Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Mainly acid sandstone; interbedded with shale and siltstone in some places

Minor Components

Dissimilar inclusions:
- The moderately well drained Sideling and Buchanan soils on the less sloping benches and the lower part of mountainsides
- Very rubbly soils that have more than 50 percent of their surface covered with stones and boulders
- Areas of rock outcrop

Similar soils:
- The well drained Berks soils
- The reddish, well drained Calvin soils
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: Most areas of these Hazleton, Lehew, and Dekalb soils are wooded.

Cropland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes and the stones on the surface, these soils are not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the severe hazard of erosion, and the stones on the surface, these soils are not suited to pasture or hay.

Woodland
Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- The large stones on the soil surface can hinder harvesting operations and damage equipment.
- Seedling mortality is a concern in areas of the droughty Dekalb and Lehew soils, especially on south aspects.
- Because the bedrock restricts the growth of roots, trees may be uprooted by strong winds or during periods of heavy snowfall, especially in areas of the Lehew and Dekalb soils.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.

- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development
Management concerns:
- The very steep slopes and the limited depth to bedrock in areas of the Dekalb and Lehew soils are severe limitations affecting community development.
- These soils are generally unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

Ho—Holly silt loam

Setting

Landscape position: Nearly level, slightly concave flood plains, mainly along Sleepy Creek and its tributaries and, to a lesser extent, Warm Springs Run; and in many places, on the backside of the flood plain nearest the uplands, in the backswamp position

Composition

Holly soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown silt loam with strong brown redoximorphic features

Subsoil:
3 to 24 inches—grayish brown silt loam with strong brown redoximorphic features
24 to 39 inches—grayish brown loam with strong brown and dark yellowish brown redoximorphic features

Underlying material:
39 to 50 inches—light brownish gray sandy loam with dark brown redoximorphic features
50 to 65 inches—brown gravelly sandy loam with dark brown and yellowish red redoximorphic features

Soil Properties and Qualities

Drainage class: Very poorly drained or poorly drained
Permeability: Moderately slow or moderate (0.2 inch to 2.0 inches per hour) in the subsoil and moderate or moderately rapid (0.6 inch to 6.0 inches per hour) in the underlying material
Available water capacity: High
Seasonal high water table: Within a depth of 0.5 foot

Flooding: Frequency—frequent (greater than 50 percent chance of flooding in any year); duration—brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, moderately acid to neutral (pH 5.6 to 7.3) in the surface layer, strongly acid to neutral (pH 5.1 to 7.3) in the subsoil, and moderately acid to slightly alkaline (pH 5.6 to 7.8) in the underlying material
Surface runoff: Negligible; frequently ponded for long periods of time
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately well drained Philo soils
- The somewhat poorly drained Tygart soils on the higher stream terraces
- The poorly drained Brinkerton soils and the moderately well drained Ernest soils on the higher upland toeslopes

Similar soils:
- The poorly drained Melvin soils
- The poorly drained Dunning soils
- Soils that are strongly acid or very strongly acid throughout

Use and Management

Uses: In many areas, this Holly soil is wooded or the acreage is idle land. Some areas are used as pasture. Some areas along Sleepy Creek have been drained and are used for crops. Most of the areas that have not been drained form wetlands. A Federal permit may be required before these areas can be disturbed.

Cropland
Suitability: Suited, if adequately drained
Management concerns:
- Most climatically adapted crops can be grown if an adequate drainage system is installed.
- Tilling and harvesting when the soil is wet may cause compaction and deterioration of tilth.
- The flooding may damage crops and delay field operations in some years.
- This soil can be cropped year after year if it is properly protected.

Management measures:
- Applying a system of conservation tillage, growing green manure crops, returning crop residue to the soil, and deferring tillage and harvesting when the soil is wet help maintain or improve tilth.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Grazing during wet periods may damage the sod.
- Unless the soil is drained, harvesting of hay is often restricted to long, dry periods.
- Debris is sometimes deposited on the grassland during flooding.

Management measures:
- The hay and pasture species that can withstand the seasonal wetness should be selected for seeding.

- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants.

Woodland

Potential productivity: Moderately high for water-tolerant species

Management concerns:

- Because of the wetness, equipment can only be used during the dry summer months and in the winter when the soil is frozen.
- The seasonal wetness may result in a high seedling mortality rate.
- The hazard of windthrow is moderate in areas of this soil because of the wetness.
- Competition from undesirable plant species may slow the growth of planted tree seedlings.

Management measures:

- The addition of roadfill and gravel is needed on sites for year-round logging roads.
- The tree species that can withstand the seasonal wetness should be selected for planting.
- Special site preparation, such as bedding before planting, reduces the seedling mortality rate.
- The hazard of windthrow can be overcome by harvest methods that do not leave the remaining trees widely spaced.
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development

Management concerns:

- Because of the flooding and the wetness, this soil is not suited to building site development.
- Because of the flooding, the wetness, and the slow permeability, this soil is not suitable as a site for septic tank absorption fields.
- The flooding, the wetness, and the potential for frost action are severe limitations affecting the construction of local roads and streets.

Management measures:

- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on raised fill material and installing a drainage system help to overcome the limitations.

Interpretive Groups

Land capability classification: 3w
Prime farmland: No
Hydric soil: Yes

HwB—Hustontown silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, concave footslopes and toeslopes of hills
Other features: Seeps and springs common in some areas

Composition

Hustontown soils and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches—dark reddish gray silt loam

Subsurface layer:
8 to 12 inches—reddish brown silt loam

Subsoil:
12 to 20 inches—reddish brown silt loam
20 to 30 inches—yellowish red and reddish brown channery silt loam with pinkish gray redoximorphic features
30 to 55 inches—reddish brown, very firm and brittle channery silt loam with pinkish gray redoximorphic features
55 to 65 inches—strong brown, very firm and brittle channery silty clay loam with pinkish gray redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour) above the very firm and brittle layer in the subsoil and moderately slow (0.2 to 0.6 inch per hour) in the very firm and brittle layer
Available water capacity: High
Depth to the seasonal high water table: 16 to 30 inches
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid in the upper part of the profile and slightly acid to strongly acid in the lower part
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately deep Calvin soils and shallow Klinesville soils on convex side slopes
- The poorly drained Brinkerton soils in depressions

Similar soils:
- The moderately well drained Buchanan soils
- The moderately well drained Sideling soils
- Soils with a channery or gravelly surface layer
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of this Hustontown soil are cleared and used for hay and pasture or as homesites. A few areas are used for crops. Some are wooded.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some crops.
- The wetness may delay planting in the spring.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some trees and thus increase the windthrow hazard.
- Because this soil is soft when wet, the use of logging equipment during wet periods will result in excessive rutting.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development
Management concerns:
- The seasonal high water table is the main limitation affecting building site development and septic tank absorption fields.
- Slow permeability is an additional limitation on sites for septic tank absorption fields.
- Low strength is a limitation on sites for local roads and streets. Because the soil is soft when wet, pavement may crack under heavy loads.
- Erosion is a moderate hazard on construction sites.

Management measures:
- Installing a drainage system around buildings with basements or crawl spaces helps to overcome the seasonal wetness.
- Installing tile drainage lines upslope from absorption fields helps to overcome the wetness.
- Increasing the size of absorption fields and installing distribution lines on the contour helps to overcome the restricted permeability in the subsoil.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by low strength.

- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 2e
Prime farmland: Yes
Hydric soil: No

Ln—Lindside silt loam

Setting

Landscape position: Nearly level flood plains; mainly along the Potomac and Cacapon Rivers and their tributaries

Composition

Lindside soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

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

Subsoil:
7 to 15 inches—brown silt loam
15 to 30 inches—brown silty clay loam with yellowish brown and reddish brown redoximorphic features
30 to 48 inches—yellowish brown silty clay loam with light brownish gray and reddish brown redoximorphic features

Underlying material:
48 to 60 inches—dark yellowish brown stratified silty clay loam, fine sandy loam, and silt loam with grayish brown redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow or moderate (0.2 inch to 2.0 inches per hour)
Available water capacity: High
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: Frequency—occasional (5 to 50 percent chance in any year); duration—brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, strongly acid to slightly alkaline (pH 5.1 to 7.8)
Surface runoff: Low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The poorly drained Dunning soils
- The poorly drained Melvin soils
- The well drained Tioga soils

Similar soils:
- Soils that have a clayey subsoil
- Soils with 3 to 8 percent slopes
- Soils that have a gravelly surface layer

Use and Management

Uses: Most areas of this Lindside soil are used for hay and pasture or for cultivated crops (fig. 8). A few areas support mixed hardwoods.

Cropland
Suitability: Suited
Management concerns:
- Cultivated crops can be grown year after year if the soil is properly protected.
- An excessive amount of nutrients in manure and fertilizer applications can result in the pollution of surface water by nutrients.
- The flooding occasionally delays field operations or damages crops.
- This soil is subject to streambank erosion in a few areas.

Management measures:
- Conservation tillage, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Designing fertilizer and manure applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.
- Leaving a border of trees along streams helps to prevent streambank erosion and protect water quality.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Figure 8.—An area of Lindside silt loam used for hay along the Potomac River.

Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Grazing during wet periods results in surface compaction, poor tilth, and damage to the sod.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.
- The flooding occasionally deposits debris on the grassland.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- Because of the flooding and the seasonal wetness, this soil is not suited to building sites or septic tank absorption fields.
- The flooding is a severe limitation affecting the construction of local roads and streets.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on raised fill material and installing a drainage system help to prevent the damage caused by the flooding and the wetness.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

LzC—Litz channery silt loam, 8 to 15 percent slopes

Setting

Landscape position: Moderately sloping, convex uplands; in the Sir Johns Run watershed and, to a lesser extent, along the eastern base of Tonoloway Ridge

Composition

Litz soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 0.5 inch—organic duff from hardwood leaf litter
0.5 inch to 1.5 inches—very dark grayish brown channery silt loam

Subsurface layer:
1.5 to 4 inches—yellowish brown channery silt loam

Subsoil:
4 to 9 inches—yellowish brown very channery silt loam
9 to 27 inches—mixed, yellowish brown very channery silt loam and strong brown very channery silty clay

Underlying material:
27 to 31 inches—strong brown extremely channery silty clay loam

Bedrock:
31 inches—hard, olive gray shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid throughout (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches

Minor Components

Dissimilar inclusions:
- The shallow Opequon soils that are underlain by limestone
- Small areas of Caneyville soils that have a clayey subsoil

Similar soils:
- The moderately deep Berks soils
- The shallow Weikert soils
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of this Litz soil are wooded. Some have been cleared and are used for hay and pasture or as homesites.

Cropland
Suitability: Suited
Management concerns:
- The hazard of erosion is severe in unprotected areas.
- This soil is droughty during the growing season and has low natural fertility.

Management measures:
- Conservation tillage, contour farming, contour stripcropping, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Because of the droughtiness, this soil is better suited to early maturing small grain than to late maturing crops, such as corn.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness limits forage production during midsummer.
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.

Community Development
Management concerns:
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The bedrock may interfere with the proper functioning of septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- The hazard of erosion is severe on construction sites.

Management measures:
- Selecting the deepest areas of the soil as a site for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field help to overcome the depth to bedrock.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No

Hydric soil: No

LzD—Litz channery silt loam, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex uplands; in the Sir Johns Run watershed and, to a lesser extent, along the eastern base of Tonoloway Ridge

Composition

Litz soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 0.5 inch—organic duff from hardwood leaf litter
0.5 inch to 1.5 inches—very dark grayish brown channery silt loam

Subsurface layer:
1.5 to 4 inches—yellowish brown channery silt loam

Subsoil:
4 to 9 inches—yellowish brown very channery silt loam
9 to 27 inches—mixed, yellowish brown very channery silt loam and strong brown very channery silty clay

Underlying material:
27 to 31 inches—strong brown extremely channery silty clay loam

Bedrock:
31 inches—hard, olive gray shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid throughout (pH 4.5 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Minor Components

Dissimilar inclusions:
- Small areas of the shallow Opequon soils that are underlain by limestone
- Small areas of Caneyville soils that have a clayey subsoil
- The very deep, moderately well drained Sideling soils
- The very deep, well drained Murrill soils

Similar soils:
- The moderately deep Berks soils
- The shallow Weikert soils

- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 15 percent or more than 25 percent

Use and Management

Uses: Most areas of this Litz soil are wooded. Some have been cleared and are used for hay and pasture or as homesites.

Cropland
Suitability: Limited (better suited to hay and pasture)
Management concerns:
- The hazard of erosion is severe in unprotected areas.
- This soil is droughty during the growing season and has low natural fertility.

Management measures:
- Conservation tillage, contour farming, contour stripcropping, cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Because of the droughtiness, this soil is better suited to early maturing small grain than to late maturing crops, such as corn.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness limits forage production during midsummer.
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- On south aspects, seedling mortality is a concern because of the droughtiness.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged help to prevent excessive erosion.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development

Management concerns:

- The slope is a severe limitation affecting building site development.
- This soil is poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- The depth to bedrock and the slope may interfere with the proper functioning of septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.
- The hazard of erosion is severe on construction sites.

Management measures:

- Buildings should be designed so that they conform to the natural slope of the land.
- Building roads and streets on the contour helps to overcome the slope.
- Selecting the deepest areas of the soil as sites for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock and the slope.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 4e
Prime farmland: No
Hydric soil: No

LzE—Litz channery silt loam, 25 to 35 percent slopes

Setting

Landscape position: Steep, convex uplands; in the Sir Johns Run watershed and, to a lesser extent, along the eastern base of Tonoloway Ridge

Composition

Litz soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 0.5 inch—organic duff from hardwood leaf litter
0.5 inch to 1.5 inches—very dark grayish brown channery silt loam

Subsurface layer:
1.5 to 4 inches—yellowish brown channery silt loam

Subsoil:
4 to 9 inches—yellowish brown very channery silt loam
9 to 27 inches—mixed, yellowish brown very channery silt loam and strong brown very channery silty clay

Underlying material:
27 to 31 inches—strong brown extremely channery silty clay loam

Bedrock:
31 inches—hard, olive gray shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid throughout (pH 4.5 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Minor Components

Dissimilar inclusions:
- The very deep, moderately well drained Sideling soils
- The very deep, well drained Murrill soils
- Small areas of the shallow Opequon soils that are underlain by limestone
- Small areas of the Caneyville soils that have a clayey subsoil

Similar soils:
- The moderately deep Berks soils
- The shallow Weikert soils
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 25 percent or more than 35 percent

Use and Management

Uses: Most areas of this Litz soil are wooded.

Cropland
Suitability: Not suited
Management concerns:
- This soil is unsuited to cultivated crops because of the steep slopes, the very severe hazard of erosion, droughtiness, and the low fertility level.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness limits forage production during midsummer.
- Erosion is a very severe hazard if the sod is removed by overgrazing.
- The slope makes the operation of conventional equipment used in clipping and applying fertilizer difficult.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Seedling mortality is a concern on south aspects because of the droughtiness.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged help to prevent excessive erosion.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.

Community Development
Management concerns:
- The slope is a severe limitation affecting building site development.
- This soil is poorly suited to building site development and to local roads and streets unless extensive land shaping is done.
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- Because of the slope and the limited depth to bedrock, this soil generally is unsuitable as a site for septic tank absorption fields.
- The rock fragments in the surface layer may interfere with the establishment of lawns and landscaping.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of this droughty soil, especially on south aspects.
- The hazard of erosion is very severe on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land.
- Building roads and streets on the contour helps to overcome the slope.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6e
Prime farmland: No
Hydric soil: No

LzF—Litz channery silt loam, 35 to 65 percent slopes

Setting

Landscape position: Very steep, convex uplands; in the Sir Johns Run watershed and, to a lesser extent, east of the Cacapon River

Composition

Litz soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 0.5 inch—organic duff from hardwood leaf litter
0.5 inch to 1.5 inches—very dark grayish brown channery silt loam

Subsurface layer:
1.5 to 4 inches—yellowish brown channery silt loam

Subsoil:
4 to 9 inches—yellowish brown very channery silt loam
9 to 27 inches—mixed, yellowish brown very channery silt loam and strong brown very channery silty clay

Underlying material:
27 to 31 inches—strong brown extremely channery silty clay loam

Bedrock:
31 inches—hard, olive gray shale

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: High
Depth to bedrock: 20 to 40 inches

Minor Components

Dissimilar inclusions:
- The very deep, moderately well drained Sideling soils
- Small areas of the Caneyville soils that have a clayey subsoil
- The very deep, well drained Murrill soils
- Small areas of the shallow Opequon soils that are underlain by limestone

Similar soils:
- The moderately deep Berks soils
- The shallow Weikert soils
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: Most areas of this Litz soil are wooded.

Cropland
Suitability: Not suited
Management concerns:
- This soil is unsuited to cultivated crops because of the very steep slopes, the very severe hazard of erosion, droughtiness, and the low fertility level.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes and the very severe hazard of erosion, this soil is not suited to pasture or hay.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- On south aspects, seedling mortality is a concern because of the droughtiness of this soil.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment. Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged help to prevent excessive erosion.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.

Community Development
Management concerns:
- The very steep slopes and the limited depth to bedrock are severe limitations affecting community development.
- This soil generally is unsuited to building site development, septic tank absorption fields, and local roads and streets.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soil: No

Me—Melvin silt loam

Setting

Landscape position: Nearly level flood plains; mainly along the Potomac and Cacapon Rivers; often in a backswamp position on the flood plain (fig. 9)

Figure 9.—A ponded area of Melvin silt loam on the backswamp of the flood plain along the Potomac River. In some areas, this soil is subject to occasional ponding for a long period of time in late winter and early spring. The Melvin soil forms wetlands in areas where a drainage system has not been installed.

Composition

Melvin soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 2 inches—very dark grayish brown silt loam
2 to 10 inches—grayish brown silt loam with dark brown redoximorphic features

Subsoil:
10 to 22 inches—light brownish gray silt loam with dark brown redoximorphic features
22 to 36 inches—grayish brown silty clay loam with dark brown redoximorphic features

Underlying material:
36 to 62 inches—dark grayish brown silt loam with dark gray and yellowish brown redoximorphic features
62 to 68 inches—dark gray sandy loam

68 to 72 inches—variegated dark gray and dark grayish brown, stratified silt and sand

Soil Properties and Qualities

Drainage class: Poorly drained or very poorly drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour)
Available water capacity: High
Depth to the seasonal high water table: Within 0.5 foot
Flooding: Frequency—frequent (more than a 50 percent chance in any year); duration—brief
Shrink-swell potential: Moderate
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate or high
Reaction: In unlimed areas, slightly acid or neutral (pH 6.1 to 7.3)
Surface runoff: Negligible; some areas occasionally ponded for long periods of time
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Small areas of the moderately well drained Ernest soils on adjacent footslopes
- Small areas of the moderately well drained Lindside soils

Similar soils:
- The poorly drained Dunning soils that have more clay in the subsoil
- The poorly drained Holly soils that have more sand throughout the profile

Use and Management

Uses: In many areas, this Melvin soil is wooded or the acreage is idle land. Some areas have been cleared and are used for pasture or hay. Most areas of this soil that have not been drained form wetlands. A Federal permit may be required before these areas can be disturbed.

Cropland
Suitability: Suited if the soil has been adequately drained
Management concerns:
- Most climatically adapted crops cannot be grown unless an adequate drainage system has been installed.
- Tilling or harvesting when the soil is wet may cause compaction and deterioration of tilth.
- The flooding occasionally delays field operations or damages crops.
- The seasonal wetness may delay tilling and planting in the spring.

Management measures:
- Applying a system of conservation tillage, growing green manure crops, returning crop residue to the soil, and deferring tillage when the soil is wet help to prevent deterioration of tilth.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Grazing when the soil is too wet may damage the sod.
- Unless the soil is drained, harvesting hay is commonly restricted to long, dry periods.

- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.

Management measures:
- Hay and pasture species that can withstand the seasonal wetness should be selected for seeding.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: High for water-tolerant species
Management concerns:
- Because of the wetness, equipment can only be used during the dry summer months and in the winter when the soil is frozen.
- The seasonal wetness may result in high seedling mortality rates.
- The hazard of windthrow is moderate because of the wetness.
- Competition from undesirable plants may slow the growth of planted tree seedlings.

Management measures:
- The addition of roadfill and gravel is needed on sites for year-round logging roads.
- Tree species that can withstand wetness should be selected for planting.
- Windthrow can be minimized by harvest methods that do not leave the remaining trees widely spaced.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development
Management concerns:
- Because of the flooding and the wetness, this soil is not suited to building site development.
- Because of the flooding, the wetness, and the moderately slow permeability, this soil is not suitable as a site for septic tank absorption fields.
- The flooding, the wetness, and low strength are severe limitations affecting the construction of local roads and streets.

Management measures:
- A better suited soil should be considered as a site for septic tank absorption fields.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.

Interpretive Groups

Land capability classification: 3w
Prime farmland: No
Hydric soil: Yes

MhA—Monongahela silt loam, 0 to 3 percent slopes

Setting

Landscape position: Nearly level, slightly convex, low stream terraces

Composition

Monongahela soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown silt loam

Subsoil:
10 to 21 inches—yellowish brown silt loam
21 to 27 inches—dark yellowish brown silt loam with yellowish brown and gray redoximorphic features
27 to 45 inches—light olive brown, very firm and brittle silt loam with yellowish brown and gray redoximorphic features
45 to 53 inches—yellowish brown, firm and brittle clay loam with gray redoximorphic features

Underlying material:
53 to 65 inches—yellowish brown sandy loam with gray redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour) above the very firm and brittle layer in the subsoil and moderately slow or slow (0.06 to 0.6 inch per hour) in the very firm and brittle layer
Available water capacity: Moderate
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The somewhat poorly drained Tygart soils or poorly drained soils in depressions or swales
- Small areas of the well drained Allegheny soils

Similar soils:
- The moderately well drained Ernest soils on adjacent toeslopes
- Soils with gravelly surfaces
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Monongahela soil have been cleared and are used for cultivated crops or for hay and pasture.

Cropland
Suitability: Suited; however, the seasonal water table and the firm layer in the subsoil may restrict the rooting depth of some crops
Management concerns:
- The wetness often delays spring planting.
- Because of the restricted rooting depth, crops may be adversely affected by a shortage of water as the soil dries out in summer.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Because this soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Competition from undesirable plants may slow the growth of planted tree seedlings.

Management measures:
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development
Suitability: Limited
Management concerns:
- The seasonal high water table is the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- Because this soil is soft when wet, road pavement may crack under heavy loads.
- The wetness limits excavation and trafficability and may delay construction activities in winter and spring.
- Erosion is a slight hazard on construction sites.

Management measures:
- The included, well drained Allegheny soils are better suited to building site development and septic tank absorption fields.
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Installing tile drainage lines upslope from absorption fields helps to overcome the wetness.
- Installing large absorption fields on the contour helps to compensate for the restricted permeability in the lower part of the subsoil.
- Constructing roads and streets on raised fill material and installing a drainage system help to overcome the wetness.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation of streams.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

MhB—Monongahela silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, slightly convex, low stream terraces

Composition

Monongahela soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 8 inches—brown silt loam

Subsoil:
8 to 13 inches—yellowish brown silt loam
13 to 25 inches—yellowish brown silt loam
25 to 30 inches—yellowish brown loam with strong brown and light brownish gray redoximorphic features
30 to 51 inches—yellowish brown, very firm and brittle loam with strong brown and light brownish gray redoximorphic features

Underlying material:
51 to 65 inches—yellowish brown loam with strong brown and gray redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour) above the very firm, brittle layer in the subsoil and moderately slow or slow (0.06 to 0.6 inch per hour) in the very firm, brittle layer
Available water capacity: Moderate
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The well drained Berks soils along upland margins
- The somewhat poorly drained Tygart soils in depressions or swales
- Small areas of the well drained Allegheny soils

Similar soils:
- The moderately well drained Ernest soils on adjacent toeslopes
- Soils that have a gravelly surface layer

- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of this Monongahela soil have been cleared and are used as cropland, hayland or pasture. Some areas are used for community development or as woodland. In some areas the acreage is idle land.

Cropland

Suitability: Suited; however, the seasonal high water table and the firm layer in the subsoil may restrict the rooting depth of some crops

Management concerns:
- Erosion is a moderate hazard in unprotected areas.
- The wetness often delays spring planting.
- Because of the restrictive rooting depth, crops may be adversely affected by a shortage of water as the soil dries out in summer.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:
- Erosion is a moderate hazard if the plant cover is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Competition from undesirable plants may slow the growth of planted tree seedlings.

Management measures:
- Building logging roads and skid trails on the contour and seeding the roads and trails after the trees are logged help to control erosion.
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The seasonal high water table is the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- Because this soil is soft when wet, road pavement may crack under heavy loads.

- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Erosion is a moderate hazard on construction sites.

Management measures:
- Included areas of the well drained Allegheny soils are better suited as a site for buildings and septic tank absorption fields.
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Installing tile drainage lines upslope from absorption fields helps to overcome the wetness.
- Installing large absorption fields on the contour helps to compensate for the restricted permeability in the lower part of the subsoil.
- Constructing roads and streets on raised fill material and installing a drainage system help to overcome the wetness, which may cause pavement to crack under heavy loads.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation of streams.

Interpretive Groups

Land capability classification: 2e
Prime farmland: No
Hydric soil: No

MhC—Monongahela silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, low stream terraces

Composition

Monongahela soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 8 inches—yellowish brown silt loam
8 to 23 inches—yellowish brown silt loam
23 to 28 inches—yellowish brown loam with strong brown and light brownish gray redoximorphic features
28 to 49 inches—yellowish brown very firm and brittle loam with strong brown and light brownish gray redoximorphic features

Underlying material:
49 to 65 inches—yellowish brown loam with strong brown and gray redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour) above the very firm, brittle layer in the subsoil and moderately slow or slow (0.06 to 0.6 inch per hour) in the very firm, brittle layer

Available water capacity: Moderate
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The well drained Berks soils along upland margins
- The somewhat poorly drained Tygart soils in depressions
- Small areas of the well drained Allegheny soils

Similar soils:
- The moderately well drained Ernest soils on adjacent toeslopes
- Soils that have a gravelly surface layer
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of this Monongahela soil have been cleared and are used for hay and pasture. In some areas, this soil is used as cropland or the acreage is idle land. A few small areas are used for community development or as woodland.

Cropland
Suitability: Suited (The seasonal high water table and the firm layer in the subsoil, however, may restrict the rooting depth of some crops.)
Management concerns:
- Erosion is a severe hazard in unprotected areas.
- The wetness often delays spring planting.
- Because of the restrictive rooting depth, crops may be adversely affected by a shortage of water as the soil dries out in summer.

Management measures:
- Conservation tillage, contour farming, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Erosion is a severe hazard if the plant cover is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Grazing should be deferred in spring until the soil is firm.

- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion on logging roads and skid trails is a management concern.
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Competition from undesirable plants may slow the growth of planted tree seedlings.

Management measures:
- Building logging roads and skid trails on the contour helps to control erosion.
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development
Management concerns:
- The seasonal high water table is the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- Because this soil is soft when wet, road pavement may crack under heavy loads.
- The wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Water may seep from cutbanks during wet periods.
- The slope increases the amount of excavation required during the construction of roads and buildings.
- Erosion is a severe hazard on construction sites.

Management measures:
- Included areas of the well drained Allegheny soils are better suited to building site development and septic tank absorption fields.
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings should be designed so that they conform to the natural slope of the land.
- Installing tile drainage lines upslope from absorption fields helps to overcome the wetness.
- Installing large absorption fields on the contour helps to compensate for the restricted permeability in the lower part of the subsoil.
- Constructing roads and streets on raised fill material and installing a drainage system help to overcome the wetness, which may cause pavement to crack under heavy loads.
- Roads and streets should be built on the contour.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

MrC—Murrill gravelly loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, linear to slightly convex footslopes; on the western side of Warm Springs Ridge and, to a lesser extent, on the eastern side of Tonoloway Ridge

Note: Landscape underlain by limestone; sinkholes common in some areas

Composition

Murrill soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

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

Subsoil:
9 to 14 inches—yellowish brown gravelly loam
14 to 24 inches—brown gravelly loam
24 to 55 inches—strong brown gravelly clay loam
55 to 72 inches—yellowish red silty clay loam mottled with red

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low in the surface layer and in the upper part of the subsoil and moderate in the lower part
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: Medium
Depth to bedrock: More than 60 inches
Bedrock type: Limestone

Minor Components

Dissimilar inclusions:
- The moderately well drained Clarksburg or Buchanan soils on concave portions of the landscape
- The moderately deep Caneyville or Litz soils on convex slopes

Similar soils:
- Blackthorn soils, which have more rock fragments in the subsoil
- Soils with a stony surface layer
- Soils with slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of this Murrill soil are wooded. A few areas have been cleared and used for cultivated crops, hay, or pasture or as homesites.

Cropland
Suitability: Suited
Management concerns:
- Erosion is a severe hazard in unprotected areas.
- Sinkholes and solution channels in the limestone bedrock increase the hazard of ground-water pollution by surface runoff of applied pesticides, fertilizers, and manure.

- An excessive amount of nutrients in manure and fertilizer applications can result in the pollution of ground water and surface water by nutrients.
- In some areas, rock fragments in the surface layer may interfere with tilling and planting.

Management measures:
- Including grasses, legumes, and small grain in crop rotations, applying a system of conservation tillage, growing cover crops and green manure crops, and applying crop residue management help to prevent excessive erosion and to maintain fertility and tilth.
- Designing fertilizer and manure applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.
- Sod filter strips maintained around sinkholes will reduce the risk of ground-water pollution.
- Manure should be stored in a properly designed storage facility.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- Erosion can be minimized by building logging roads and skid trails on the contour; seeding roads, trails, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development
Management concerns:
- The slope is a moderate limitation affecting community development.
- Sinkholes and solution channels in the limestone bedrock increase the hazard of ground-water pollution by surface runoff and seepage from septic tank absorption fields.
- The shrink-swell potential is a moderate limitation on sites for dwellings with basements.
- Low soil strength and the potential for frost action are moderate limitations affecting road construction.
- The rock fragments in the surface layer may interfere with the establishment of lawns.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Septic tank absorption fields should not be installed in areas near limestone outcroppings, in sinkholes, or where excavation has exposed limestone bedrock.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Providing a suitable road base that includes the installation of properly designed geotextiles helps to prevent the road damage caused by low strength and frost action.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

MrD—Murrill gravelly loam, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, linear to slightly convex footslopes and benches; on the western side of Warm Springs Ridge and, to a lesser extent, on the eastern side of Tonoloway Ridge
Note: Landscape underlain by limestone; sinkholes common in some areas

Composition

Murrill soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

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

Subsoil:
9 to 14 inches—yellowish brown gravelly loam
14 to 24 inches—brown gravelly loam
24 to 55 inches—strong brown gravelly clay loam
55 to 72 inches—yellowish red silty clay loam mottled with red

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low in the surface layer and in the upper part of the subsoil and moderate in the lower part
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate

Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: High
Depth to bedrock: More than 60 inches
Bedrock type: Limestone

Minor Components

Dissimilar inclusions:
- The moderately well drained Clarksburg or Buchanan soils on concave portions of the landscape
- The moderately deep Caneyville or Litz soils on convex slopes

Similar soils:
- Blackthorn soils, which have more rock fragments in the subsoil
- Sideling soils that are underlain by shale bedrock
- Stony soils
- Soils with slopes of less than 15 percent or more than 25 percent

Use and Management

Uses: Most areas of this Murrill soil are wooded. A few have been cleared and are used for cultivated crops, hay, or pasture or as homesites.

Cropland
Suitability: Limited (better suited to hay and pasture)
Management concerns:
- Erosion is a severe hazard in unprotected areas.
- Sinkholes and solution channels in the limestone bedrock increase the hazard of ground-water pollution by surface runoff of applied pesticides, fertilizers, and manure.
- An excessive amount of nutrients in manure and fertilizer applications can result in the pollution of ground water and surface water by nutrients.
- In some areas, rock fragments in the surface layer may interfere with tilling and planting.

Management measures:
- Including grasses, legumes, and small grain in crop rotations, applying a system of conservation tillage, growing cover crops and green manure crops, and applying crop residue management help to prevent excessive erosion and to maintain fertility and tilth.
- Designing fertilizer and manure applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.
- Sod filter strips maintained around sinkholes will reduce the risk of ground-water pollution.
- Manure should be stored in a properly designed storage facility.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.

- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.
- Seedling mortality is a concern on south-facing slopes.

Management measures:
- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development
Management concerns:
- The slope is a limitation affecting community development.
- Sinkholes and solution channels in the limestone bedrock increase the hazard of ground-water pollution by surface runoff and seepage from septic tank absorption fields.
- The shrink-swell potential is a moderate limitation on sites for dwellings with basements.
- Low soil strength and the potential for frost action are moderate limitations on sites for road construction.
- The rock fragments in the surface layer may interfere with the establishment of lawns.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Septic tank absorption fields should not be installed in areas near limestone outcroppings, in sinkholes, or where excavation has exposed limestone bedrock.
- Septic tank absorption fields should be installed on the contour.
- Properly designing and strengthening footings and foundations help to prevent the structural damage caused by shrinking and swelling.
- Providing a suitable road base that includes the installation of properly designed geotextiles helps to prevent the road damage caused by low strength and frost action.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 4e
Prime farmland: No
Hydric soil: No

MsC—Murrill loam, 3 to 15 percent slopes, extremely stony

Setting

Landscape position: Gently sloping and strongly sloping, linear to slightly convex footslopes; on the western side of Warm Springs Ridge and, to a lesser extent, on the eastern side of Tonoloway Ridge
Note: Landscape underlain by limestone; sinkholes common in some areas

Composition

Murrill soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 2 inches—very dark gray loam

Subsurface layer:
2 to 9 inches—brown loam

Subsoil:
9 to 13 inches—yellowish brown gravelly loam
13 to 26 inches—strong brown gravelly loam
26 to 43 inches—strong brown gravelly sandy clay loam
43 to 60 inches—yellowish red silty clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low in the surface layer and in the upper part of the subsoil and moderate in the lower part
Hazard of water erosion: Moderate or severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Moderate
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: Medium
Depth to bedrock: More than 60 inches
Bedrock type: Limestone

Minor Components

Dissimilar inclusions:
- The moderately well drained Buchanan soils on the concave portions of the landscape
- The moderately deep Caneyville or Litz soils on convex slopes

Similar soils:
- Blackthorn soils, which have more rock fragments in the subsoil

- Sideling soils that are underlain by shale bedrock
- Soils with slopes of less than 3 percent or more than 15 percent

Use and Management

Uses: Almost all areas of this Murrill soil are wooded. A few have been cleared and are used for pasture or as homesites.

Cropland
Suitability: Not suited
Management concerns:
- Because of the stones and boulders on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; limited suitability for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate or severe hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The extremely stony soil surface restricts the use of farm machinery.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.
- The large stones and boulders on the soil surface may interfere with the planting of tree seedlings and hinder harvesting operations.

Management measures:
- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development
Management concerns:
- The slope is a moderate limitation affecting community development.
- Sinkholes and solution channels in the limestone bedrock increase the hazard of ground-water pollution by surface runoff and seepage from septic tank absorption fields.
- The shrink-swell potential is a moderate limitation on sites for dwellings with basements.
- Low soil strength and the potential for frost action are moderate limitations affecting road construction.
- The stones and boulders on the soil surface may interfere with construction and with the establishment of lawns and landscaping.
- Erosion on construction sites is a moderate or severe hazard.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Septic tank absorption fields should not be installed in areas near limestone outcroppings, in sinkholes, or where excavation has exposed limestone bedrock.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Providing a suitable road base that includes the installation of properly designed geotextiles helps to prevent the road damage caused by low strength and frost action.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6s
Prime farmland: No
Hydric soil: No

MsE—Murrill loam, 15 to 35 percent slopes, extremely stony

Setting

Landscape position: Moderately steep and steep, linear to slightly convex footslopes; on the western side of Warm Springs Ridge and, to a lesser extent, on the eastern side of Tonoloway Ridge
Note: Landscape underlain by limestone; sinkholes common in some areas

Composition

Murrill soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 2 inches—very dark gray loam

Subsurface layer:
2 to 9 inches—brown loam

Subsoil:
9 to 13 inches—yellowish brown gravelly loam
13 to 26 inches—strong brown gravelly loam
26 to 43 inches—strong brown gravelly sandy clay loam
43 to 60 inches—yellowish red silty clay

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low in the surface layer and in the upper part of the subsoil and moderate in the lower part

Hazard of water erosion: Severe or very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Moderate
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: High
Depth to bedrock: More than 60 inches
Bedrock type: Limestone

Minor Components

Dissimilar inclusions:
- The moderately well drained Buchanan soils on concave portions of the landscape
- The moderately deep Caneyville and Litz soils on convex slopes

Similar soils:
- Blackthorn soils, which have more rock fragments in the subsoil
- Sideling soils that are underlain by shale bedrock
- Soils with slopes of less than 3 percent or more than 15 percent

Use and Management

Uses: Nearly all areas of this Murrill soil are wooded. A few small areas have been cleared and are used as homesites.

Cropland
Suitability: Not suited
Management concerns:
- Because of the slope and the stones and boulders on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a severe or very severe hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The extremely stony soil surface and the slope restrict the use of farm machinery.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Competition from weeds may slow the growth of planted tree seedlings.
- The large stones and boulders on the soil surface and the slope may interfere with the planting of tree seedlings and hinder harvesting operations.
- Seedling mortality is a concern on south-facing slopes.

Management measures:
- Erosion can be minimized by building logging roads and skid trails on the contour; seeding roads, trails, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.

- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Adequate site preparation helps to control initial plant competition, and spraying helps to control subsequent competition.

Community Development

Management concerns:
- The slope is a severe limitation affecting community development.
- Sinkholes and solution channels in the limestone bedrock increase the hazard of ground-water pollution by surface runoff and seepage from septic tank absorption fields.
- The shrink-swell potential is a moderate limitation on sites for dwellings with basements.
- Low soil strength and the potential for frost action are moderate limitations affecting road construction.
- The stones and boulders on the soil surface may interfere with construction and with the establishment of lawns and landscaping.
- Erosion is a severe hazard on construction sites.

Management measures:
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Septic tank absorption fields should not be installed in areas near limestone outcroppings, in sinkholes, or where excavation has exposed limestone bedrock.
- Distribution lines should be installed on the contour.
- Properly designing and strengthening footings and foundations can help to prevent the structural damage caused by shrinking and swelling.
- Providing a suitable road base that includes the installation of properly designed geotextiles helps to prevent the road damage caused by low strength and frost action.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

Pg—Philo gravelly loam

Setting

Landscape position: Nearly level flood plains; mostly along Sleepy Creek and its tributaries; in the eastern part of the county

Composition

Philo soil and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Surface layer:
0 to 3 inches—dark grayish brown gravelly loam
3 to 9 inches—dark brown gravelly loam

Subsoil:
9 to 17 inches—yellowish brown gravelly loam with light brownish gray and dark yellowish brown redoximorphic features
17 to 29 inches—yellowish brown gravelly loam with light brownish gray and yellowish brown redoximorphic features

Underlying material:
29 to 48 inches—dark grayish brown gravelly fine sandy loam with light brownish gray and yellowish brown redoximorphic features
48 to 65 inches—dark grayish brown, stratified gravelly sand and loam

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: Frequency—occasional (5 to 50 percent chance of flooding in any year); duration—very brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: Very strongly acid to moderately acid throughout (pH 4.5 to 6.0)
Surface runoff: Low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The poorly drained Holly soils
- The poorly drained Melvin soils
- The well drained Pope soils
- The moderately well drained Ernest soils on narrow upland footslopes
- The somewhat poorly drained Tygart soils on narrow stream terraces

Similar soils:
- The reddish brown Basher soils
- Soils that are frequently flooded
- Soils that have a surface layer of fine sandy loam or silt loam
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Philo soil are used for hay and pasture. Some are used for cultivated crops. A few are used as woodland.

Cropland
Suitability: Suited
Management concerns:
- This soil can be cropped year after year if it is properly protected.
- The flooding may occasionally damage crops and delay field operations.
- The seasonal wetness may delay tilling and planting in the spring.
- The gravel and cobbles in the surface layer may interfere with cultivation in some areas.
- This soil is subject to streambank erosion in many areas.

Management measures:
- Conservation tillage, a crop rotation that includes hay, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.

- Leaving a border of trees along streams helps to prevent streambank erosion and protect water quality.

Pasture and Hayland

Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)

Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.
- Debris may be deposited on the grassland if the soil is flooded.
- Grazing during wet periods may damage the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland

Potential productivity: Moderately high

Management concerns:
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- The tree species that can withstand the seasonal wetness should be selected for planting.
- If trees are planted, adequate site preparation helps to control initial plant competition and spraying helps to control subsequent competition.
- The addition of roadfill and gravel is needed on sites for year-round logging roads.

Community Development

Management concerns:
- Because of the flooding and the wetness, this soil is not suited to building site development and septic tank absorption fields.
- Because of the flooding and the wetness, this soil is severely limited as a site for local roads and streets.
- Excavations are unstable and are subject to caving.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on raised fill material and installing a drainage system help to overcome the wetness.
- Trench walls should be reinforced to prevent caving.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

Ph—Philo silt loam

Setting

Landscape position: Nearly level flood plains; mostly along Sleepy Creek and its tributaries; in the eastern part of the county

Composition

Philo soil and similar soils: 75 percent
Dissimilar inclusions: 25 percent

Typical Profile

Surface layer:
0 to 10 inches—brown silt loam

Subsoil:
10 to 17 inches—dark yellowish brown silt loam
17 to 29 inches—yellowish brown silt loam with light brownish gray and dark yellowish brown redoximorphic features
29 to 53 inches—brown silt loam with light brownish gray and yellowish brown redoximorphic features

Underlying material:
53 to 65 inches—brown silt loam with light brownish gray and strong brown redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 1.5 to 3.0 feet
Flooding: Frequency—occasional (5 to 50 percent chance of flooding in any year); duration—brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: Very strongly acid to moderately acid throughout (pH 4.5 to 6.0)
Surface runoff: Low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The poorly drained Holly soils
- The poorly drained Melvin soils
- The well drained Pope soils
- The moderately well drained Ernest soils on narrow upland footslopes
- The somewhat poorly drained Tygart soils on narrow stream terraces

Similar soils:
- The reddish brown Basher soils
- Soils that are gravelly in the subsoil
- Soils that are frequently flooded
- Soils that have a surface layer of fine sandy loam
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Philo soil are used for hay and pasture. Some are used for cultivated crops. A few are used as woodland.

Cropland
Suitability: Suited
Management concerns:
- This soil can be cropped year after year if it is properly protected.
- The flooding may occasionally damage crops and delay field operations.
- The seasonal wetness may delay tilling and planting in the spring.
- This soil is subject to streambank erosion in many areas.

Management measures:
- Conservation tillage, a crop rotation that includes hay, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Leaving a border of trees along streams helps to prevent streambank erosion and protect water quality.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.
- Debris may be deposited on the grassland if the soil is flooded.
- Grazing during wet periods may damage the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- The tree species that can withstand the seasonal wetness should be selected for planting.
- If trees are planted, adequate site preparation helps to control initial plant competition and spraying helps to control subsequent competition.
- The addition of roadfill and gravel is needed on sites for year-round logging roads.

Community Development
Management concerns:
- Because of the flooding and the wetness, this soil is not suited to building site development and septic tank absorption fields.

- Because of the flooding and the wetness, this soil is severely limited as a site for local roads and streets.
- Excavations are unstable and are subject to caving.

Management measures:

- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on raised fill material and installing a drainage system help to overcome the wetness and the flooding.
- Trench walls should be reinforced to prevent caving.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

Ps—Pope fine sandy loam

Setting

Landscape position: Nearly level flood plains; mainly along Sleepy Creek and its tributaries; in the eastern part of the county

Composition

Pope soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown fine sandy loam

Subsoil:
10 to 42 inches—dark yellowish brown fine sandy loam

Underlying material:
42 to 65 inches—strong brown sandy loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 3.5 to 6.0 feet or more
Flooding: Frequency—occasional (a 5 to 50 percent chance of flooding in any year); duration—very brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:

- The poorly drained Holly soils and the moderately well drained Philo soils in sloughs and depressions
- Sand and gravel bars directly adjacent to streams

Similar soils:
- The Pope soils that have a surface layer of silt loam
- Soils that are gravelly throughout
- Soils that have loamy sand textures and are somewhat excessively drained or excessively drained
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Pope soil are used as woodland. Some have been cleared and are used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- Cultivated crops can be grown year after year if the soil is properly protected.
- The flooding occasionally delays field operations or damages crops.
- This soil is subject to streambank erosion in many areas.
- An excessive amount of nutrients in manure and fertilizer applications can result in the pollution of ground water and nearby streams by nutrients.
- This soil is sometimes droughty during the growing season.

Management measures:
- Conservation tillage, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- Including grasses and legumes in crop rotations can reduce nutrient losses, improve soil structure, and provide nitrogen for use by succeeding crops.
- Leaving a border of trees along streams helps to prevent streambank erosion and protect water quality.
- Designing fertilizer applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The flooding frequently deposits debris on the grassland.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- For tree plantations, adequate site preparation helps to control initial plant competition and spraying helps to control subsequent competition.

Community Development
Management concerns:
- Because of the flooding, this soil is generally unsuited to building site development and septic tank absorption fields.
- Because of the flooding, this soil is severely limited as a site for local roads and streets.
- Excavations are often unstable and are subject to caving.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on well compacted, raised fill material can help to prevent the damage caused by flooding.
- Trench walls should be reinforced to prevent caving.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

Px—Pope silt loam

Setting

Landscape position: Nearly level flood plains; mainly along Sleepy Creek and its tributaries; in the eastern part of the county

Composition

Pope soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 10 inches—dark brown silt loam

Subsoil:
10 to 51 inches—brown silt loam

Underlying material:
51 to 65 inches—brown loam

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 3.5 to 6.0 feet or more
Flooding: Frequency—occasional (5 to 50 percent chance of flooding in any year); duration—very brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)

Surface runoff: Low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:
- The poorly drained Holly soils and the moderately well drained Philo soils in sloughs or depressions
- Sand and gravel bars directly adjacent to streams

Similar soils:
- The Pope soil that has a surface layer of fine sandy loam
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Pope soil are used as woodland. Some have been cleared and are used as cropland, hayland, or pasture.

Cropland
Suitability: Suited
Management concerns:
- This soil must be properly protected if cultivated crops are grown year after year.
- The flooding occasionally delays field operations or damages crops.
- This soil is subject to streambank erosion in some areas.
- An excessive amount of nutrients in manure and fertilizer applications can result in the pollution of ground water and nearby streams by nutrients.

Management measures:
- Conservation tillage, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- A crop rotation that includes grasses and legumes helps to reduce nutrient losses, improve soil structure, and provide nitrogen for use by succeeding crops.
- Leaving a border of trees along streams helps to prevent streambank erosion and protect water quality.
- Designing fertilizer applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The flooding occasionally deposits debris on the grassland.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development
Suitability: Not suited
Management concerns:
- Because of the flooding, this soil is generally unsuited to building site development and septic tank absorption fields.
- Because of the flooding, this soil is severely limited as a site for local roads and streets.
- Excavations are often unstable and are subject to caving.

Management measures:
- A better suited soil should be considered as a site for septic tank absorption fields.
- Constructing roads on well compacted, raised fill material helps to prevent the damage caused by flooding.
- Trench walls should be reinforced to prevent caving.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

Pz—Pope-Philo fine sandy loams

Setting

Landscape position: Narrow, low flood plains along small streams; throughout the county
Note: Irregularly shaped areas due to the periodic cutting of new stream channels and deposition of soil material during periods of flooding

Composition

Pope soil and similar soils: 50 percent
Philo soil and similar soils: 30 percent
Dissimilar inclusions: 20 percent

Typical Profile

Pope
Surface layer:
0 to 10 inches—dark brown fine sandy loam

Subsoil:
10 to 26 inches—dark yellowish brown fine sandy loam

Underlying material:
26 to 65 inches—dark yellowish brown very gravelly loamy sand

Philo
Surface layer:
0 to 10 inches—dark brown sandy loam

Subsoil:
10 to 13 inches—dark yellowish brown fine sandy loam
13 to 21 inches—dark yellowish brown fine sandy loam with grayish brown and strong brown redoximorphic features

Underlying material:
21 to 65 inches—brown very gravelly fine sandy loam with grayish brown and strong brown redoximorphic features

Soil Properties and Qualities

Pope
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: More than 3.0 feet
Flooding: Frequency—frequent (more than a 50 percent chance of flooding in any year); duration—extremely brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Philo
Drainage class: Moderately well drained
Permeability: Moderate (0.6 inch to 2.0 inches per hour)
Available water capacity: Moderate or high
Depth to the seasonal high water table: 1.0 to 3.0 feet
Flooding: Frequency—frequent (more than a 50 percent chance of flooding in any year); duration—extremely brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Moderate
Reaction: Very strongly acid to moderately acid throughout (pH 4.5 to 6.0)
Surface runoff: Low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The poorly drained Holly soils in depressions
- The poorly drained Brinkerton soils on the adjacent, low footslopes
- The moderately well drained Ernest soils on the adjacent footslopes
- Gravel and sand bars

Similar soils:
- The well drained Combs soils
- The well drained Tioga soils
- Soils that are subject to occasional flooding

Use and Management

Uses: Most areas of these Pope and Philo soils are used as woodland. Some have been cleared and are used for pasture and hay.

Cropland
Suitability: Not suited
Management concerns:
- These soils are generally not suited to cultivated crops because of the flooding during the growing season, the seasonal high water table, and the irregularly shaped areas of the map unit.
- The flooding often results in severe crop damage or loss.
- Because of the irregularly shaped areas of this unit, the operation of farm machinery is difficult.

Pasture and Hayland
Suitability: Generally not suited to hay; suited to pasture
Management concerns:
- The flooding during the growing season and the irregularly shaped areas make these soils generally unsuited to hay.
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Grazing during wet periods causes surface compaction and poor tilth and can damage the sod.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.
- The flooding frequently deposits debris on the grassland.

Management measures:
- Grazing should be deferred in spring until the soil is firm.
- Streambanks should be fenced, and access to streams by livestock should be limited to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage plants.

Woodland
Potential productivity: Moderately high or high
Management concerns:
- The use of vehicular equipment is restricted during wet periods because these soils are soft when wet.
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- If trees are planted, adequate site preparation helps to control initial plant competition and spraying helps to control subsequent competition.
- The addition of roadfill and gravel is needed on sites for year-round logging roads.

Community Development
Suitability: Not suited
Management concerns:
- Because of the frequent flooding, these soils are generally unsuited to building site development and septic tank absorption fields.
- Because of the flooding, these soils are severely limited as sites for local roads and streets.
- Excavations are often unstable and are subject to caving.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Constructing roads on well compacted, raised fill material helps to prevent the damage caused by flooding.
- Trench walls should be reinforced to prevent caving.

Interpretive Groups

Land capability classification: 5w
Prime farmland: No
Hydric soils: No

Qm—Quarry, limestone

Setting

This map unit consists of areas of open excavations from which limestone has been quarried. Surrounding the excavations are dump areas consisting of a mixture of rock fragments and soil material that was removed during the quarrying operation. These areas are mainly on the western aspect of Warm Springs Ridge.

Composition

Quarry, limestone: 97 percent
Dissimilar inclusions: 3 percent

Typical Profile

This map unit is considered to be a nonsoil area; therefore, a typical profile is not given.

Properties and Qualities

The quarries generally have vertical walls ranging from 15 to more than 100 feet in height. The soil material in the dump areas generally is extremely bouldery. The fine-earth fraction of these soils generally has a high content of clay and is slightly alkaline.

Some areas of the map unit are sparsely wooded with a mixture of red cedar, black locust, tree-of-heaven, and red maple. Many areas are barren. Slopes are gently sloping to very steep.

Minor Components

Dissimilar inclusions:
- The moderately deep Caneyville soils
- The shallow Opequon soils
- The very deep Murrill soils

Use and Management

Most of these limestone quarries are inactive. The limestone excavated from these quarries was mainly crushed and used for road base. An onsite investigation is necessary to determine the suitability of the map unit for most uses.

Interpretive Groups

Land capability classification: Not assigned
Prime farmland: No
Hydric soil: No

Qo—Quarry, sandstone

Setting

This map unit consists of areas of open excavations from which sandstone has been quarried. Surrounding the excavations are dump areas consisting of a mixture of rock fragments and soil material that was removed during the quarrying operation. These areas are mainly on Warm Springs Ridge.

Composition

Quarry, sandstone: 95 percent
Dissimilar inclusions: 5 percent

Typical Profile

This map unit is considered to be a nonsoil area; therefore, a typical profile is not given.

Properties and Qualities

The quarries generally have vertical walls ranging from 15 to more than 150 feet in height. The soil material in the dump areas generally is extremely bouldery. The fine-earth fraction of these soils generally has a high content of sand and is moderately acid to neutral in reaction.

Many areas are barren. Slopes are gently sloping to very steep.

Minor Components

Dissimilar inclusions:
- The moderately deep Schaffenaker soils
- The moderately deep Dekalb soils
- The very deep Vanderlip soils

Use and Management

The sandstone excavated from these quarries is mainly crushed and used as a source of high-grade silica sand. An onsite investigation is necessary to determine the suitability of the map unit for most uses.

Interpretive Groups

Land capability classification: Not assigned
Prime farmland: No
Hydric soil: No

Qs—Quarry, shale

Setting

This map unit consists of areas of open pits from which shale has been excavated. The pits are located throughout the county.

Composition

Quarry, shale: 96 percent
Dissimilar inclusions: 4 percent

Typical Profile

This map unit is considered to be a nonsoil area; therefore, a typical profile is not given.

Properties and Qualities

Some areas of this unit have nearly vertical highwalls ranging from 5 to 30 feet in height. Shale bedrock is exposed throughout the unit. The reaction of the shale material ranges from extremely acid to strongly acid (pH 3.5 to 5.5).

Most areas of the unit are barren or support a limited amount of vegetation.

Minor Components

Dissimilar inclusions:
- The shallow Weikert soils and the moderately deep Berks soils, which are along the margins of this map unit and in small, undisturbed areas in the unit

Use and Management

Shale excavated from areas of this map unit is used as a road base and as fill on construction sites. An onsite investigation is needed to determine the suitability of the map unit for most uses.

Interpretive Groups

Land capability classification: Not assigned
Prime farmland: No
Hydric soil: No

ReG—Rock outcrop-Opequon complex, 55 to 100 percent slopes

Setting

Landscape position: Very steep limestone bluffs and hillsides; along the Cacapon River
Note: The Opequon soil and the Rock outcrop occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Rock outcrop: 50 percent
Opequon soil and similar soils: 40 percent
Dissimilar inclusions: 10 percent

Typical Profile

Rock outcrop

In most areas the Rock outcrop occurs as areas of nearly vertical limestone bluffs that range from 10 to 80 feet in height.

Opequon
Surface layer:
0 to 2 inches—dark brown channery silty clay loam

Subsoil:
2 to 8 inches—dark yellowish brown and strong brown channery silty clay
8 to 13 inches—strong brown channery silty clay

Underlying material:
13 to 16 inches—strong brown very channery silty clay

Bedrock:
16 inches—hard, gray limestone

Soil Properties and Qualities

Opequon
Drainage class: Well drained
Permeability: Moderately slow or moderate (0.2 inch to 2.0 inches per hour)

Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: High
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, moderately acid to slightly alkaline (pH 6.1 to 7.8)
Surface runoff: Very high
Depth to bedrock: 12 to 20 inches
Bedrock type: Hard, nonrippable limestone

Minor Components

Dissimilar inclusions:
- The moderately deep Caneyville soils
- The very deep Blackthorn soils

Similar soils:
- Soils that have slopes of less than 55 percent

Use and Management

Uses: Most areas of this map unit are forested with trees that have low commercial value. Because of the very steep slopes, the Rock outcrop, and the very severe hazard of erosion, the map unit is suited only to woodland, wildlife habitat, and recreational activities.

Cropland
Suitability: Not suited

Pasture and Hayland
Suitability: Not suited

Woodland
Potential productivity: Low
Management concerns:
- The limestone bluffs make managing this map unit for forestry difficult.
- Erosion is a very severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- Low strength and the high shrink-swell potential increase the hazard of slippage.
- Because the Opequon soil is droughty, seedling mortality is a concern, especially on south aspects.
- Windthrow is a hazard because of the depth to bedrock in areas of the Opequon soil.

Management measures:
- Because of the very steep slopes and the hazard of slippage, special logging methods, such as cable yarding, should be considered.

Community Development
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the depth to bedrock, the Rock outcrop, and the hazard of slippage, this map unit is unsuited to community development.

Interpretive Groups

Land capability classification: 8s
Prime farmland: No

Hydric soil: No

RgG—Rock outcrop-Rough complex, 55 to 100 percent slopes

Setting

Landscape position: Very steep shale bluffs and hillsides; along the Potomac River, Cacapon River, and Sleepy Creek
Note: The Rough soil and the Rock outcrop occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Rock outcrop: 50 percent
Rough soil and similar soils: 45 percent
Dissimilar inclusions: 5 percent

Typical Profile

Rock outcrop

In most areas the Rock outcrop occurs as areas of nearly vertical, shale bluffs that range from 10 to 100 feet in height.

Rough
Surface layer:
0 to 2 inches—very dark gray very channery silt loam

Underlying material:
2 to 6 inches—dark yellowish brown extremely channery silt loam

Bedrock:
6 inches—soft, olive brown shale

Soil Properties and Qualities

Rough
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid or very strongly acid (pH 3.5 to 5.0)
Surface runoff: Medium
Depth to bedrock: 4 to 9 inches
Bedrock type: Soft, rippable shale

Minor Components

Dissimilar inclusions:
- The shallow Weikert soils
- The moderately deep Berks soils
- The very deep Rushtown soils

Similar soils:
- Soils with slopes of less than 55 percent

Use and Management

Uses: Areas of this map unit are forested with trees that have low commercial value. Some areas on south aspects are classified as “shale barrens” (fig. 10). Because of the very steep slopes, the Rock outcrop, and the very severe hazard of erosion, this map unit is suited only to woodland, wildlife habitat, and recreation.

Cropland
Suitability: Not suited

Pasture and Hayland
Suitability: Not suited

Woodland
Potential productivity: Very low
Management concerns:
- The shale bluffs make managing this map unit for forestry difficult.
- Erosion is a very severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- The droughtiness results in a high seedling mortality rate, especially on south aspects.
- Windthrow is a hazard because of the depth to bedrock in areas of the Rough soil.

Management measures:
- Because of the very steep slopes and the hazard of slippage, special logging methods, such as cable yarding, should be considered.

Figure 10.—An area of Rock outcrop-Rough complex, 55 to 100 percent slopes, along the Cacapon River. On south aspects, areas of these soils form unique ecological niches called “shale barrens.”

Community Development

Suitability: Not suited

Management concerns:

- Because of the very steep slopes, the depth to bedrock, and the Rock outcrop, this map unit is not suited to community development.

Interpretive Groups

Land capability classification: 8s
Prime farmland: No
Hydric soil: No

RuD—Rushtown channery silt loam, 8 to 25 percent slopes

Setting

Landscape position: Strongly sloping and moderately steep, linear to concave footslopes

Composition

Rushtown soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

Surface layer:
0 to 0.5 inch—organic duff from hardwood leaf litter
0.5 inch to 1.5 inches—very dark grayish brown channery silt loam
1.5 to 6 inches—dark yellowish brown channery silt loam

Subsoil:
6 to 22 inches—yellowish brown very channery silt loam

Underlying material:
22 to 65 inches—yellowish brown extremely channery silt loam

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: Very low

Minor Components

Dissimilar inclusions:

- The moderately deep Berks soils
- Small areas of the moderately well drained Ernest soils on footslopes

Similar soils:

- Soils with slopes of less than 8 percent or more than 25 percent

Use and Management

Uses: Most areas of this Rushtown soil are wooded. A few areas have been excavated to expose the underlying material, which is used as a road base.

Cropland
Suitability: Not suited
Management concerns:
- Because of the moderately steep slopes, the severe hazard of erosion, droughtiness, and the low natural fertility, cultivating this soil is impractical.

Pasture and Hayland
Suitability: Not suited to hay; limited suitability for pasture
Management concerns:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of this soil limits forage production during midsummer.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The slope is a moderate limitation affecting equipment operation.
- Seedling mortality is a concern because of the droughtiness.

Management measures:
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged also helps to prevent excessive erosion.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development
Suitability: Poorly suited
Management concerns:
- This soil generally is not suitable as a site for septic tank absorption fields because it is rapidly permeable and has poor filtering capacity. Septic tank effluent may not be adequately filtered before it reaches the ground water.
- The slope is a limitation affecting excavation, building site development, and road construction. Extensive land shaping is necessary in some areas.

- Establishing and maintaining vegetation on roadbanks is difficult in areas of this droughty soil, especially on south-facing slopes.
- The rock fragments in the surface layer and the droughtiness make the establishment of lawns difficult.
- The hazard of erosion on construction sites is severe.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Buildings and roads should be designed so that they conform to the natural slope of the land.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks. Seeded areas should be mulched with straw.

Interpretive Groups

Land capability classification: 6e
Prime farmland: No
Hydric soil: No

RuF—Rushtown channery silt loam, 35 to 65 percent slopes

Setting

Landscape position: Very steep, linear to concave hillsides; mainly adjacent to streams

Composition

Rushtown soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 0.5 inch—organic duff from hardwood leaf litter
0.5 inch to 1.5 inches—very dark grayish brown channery silt loam
1.5 to 6 inches—dark yellowish brown channery silt loam

Subsoil:
6 to 22 inches—yellowish brown very channery silt loam

Underlying material:
22 to 65 inches—yellowish brown extremely channery silt loam

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low

Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: Low

Minor Components

Dissimilar inclusions:
- The moderately deep Berks soils
- Small areas of the moderately well drained Ernest soils on footslopes

Similar soils:
- Soils with slopes of less than 35 percent or more than 65 percent

Use and Management

Uses: Most areas of this Rushtown soil are wooded. A few have been excavated to expose the underlying shale material, which is used for road base.

Cropland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the very severe hazard of erosion, droughtiness, and the low natural fertility, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes and the very severe hazard of erosion, this soil is not suited to pasture and hay.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- Seedling mortality is a concern because of the droughtiness on south aspects.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment.
- Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development
Suitability: Not suited
Management concerns:
- The very steep slope is a severe limitation affecting community development.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soil: No

ShC—Schaffenaker loamy sand, 3 to 15 percent slopes, very bouldery

Setting

Landscape position: Gently sloping and strongly sloping, convex ridgetops; on Warm Springs Ridge

Composition

Schaffenaker soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 1 inch—organic duff from hardwood leaf litter
1 to 2 inches—very dark brown loamy sand

Subsurface layer:
2 to 4 inches—brown loamy sand

Subsoil:
4 to 18 inches—yellowish brown gravelly loamy sand

Underlying material:
18 to 24 inches—yellowish brown gravelly loamy sand

Bedrock:
24 inches—moderately weathered, light gray sandstone

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate or severe
Percentage of the surface covered by rock fragments: 0.1 to 3 percent covered with boulders and stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Hard sandstone

Minor Components

Dissimilar inclusions:
- Moderately well drained soils in shallow depressions
- Small areas of the very deep Vanderlip soils
- Small areas of the well drained Dekalb soils
- Small areas of sandstone outcroppings
- Soils that are less than 20 inches deep over bedrock

Similar soils:
- Soils with 15 to 25 percent slopes
- Soils with slopes of less than 3 percent
- Extremely bouldery soils with 3 to 15 percent of the surface covered with boulders

- Soils with less than 0.1 percent of the surface covered with boulders

Use and Management

Uses: Most areas of this Schaffenaker soil are wooded.

Cropland
Suitability: Not suited
- The boulders, the droughtiness, and the low natural fertility make it impractical to grow cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- The boulders make the operation of conventional equipment used in clipping and applying fertilizer difficult.
- The droughtiness limits forage production during midsummer.
- In areas of this soil, water for livestock is scarce and ponds constructed for livestock water are prone to seepage.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- The boulders on the surface can hinder harvesting operations and damage equipment.
- The limited depth to bedrock, the low natural fertility, and the droughtiness can result in a moderate seedling mortality rate.
- Because the depth to bedrock restricts the penetration of roots, trees may be uprooted by strong winds or during periods of heavy snowfall.

Management measures:
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed to take full advantage of spring rains.

Community Development
Suitability: Poorly suited
Management concerns:
- The depth to bedrock is the main limitation on sites for buildings, septic tank absorption fields, excavations, and local roads and streets.
- In most areas the bedrock is too hard to be excavated with conventional earthmoving equipment.
- This soil generally is not suitable as a site for septic tank absorption fields because it is rapidly permeable and has poor filtering capacity. Septic tank effluent may not be adequately filtered before it reaches the ground water.
- The boulders may interfere with the operation of construction equipment.
- Establishing and maintaining vegetation on roadbanks is difficult on this droughty soil, especially on south-facing slopes.
- The hazard of erosion is moderate or severe on construction sites.

Management measures:
- Building on the bedrock and adding extra fill when landscaping may be preferable to excavating the bedrock.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

SkF—Schaffenaker-Rock outcrop complex, 35 to 65 percent slopes, rubbly

Setting

Landscape position: Very steep, convex ridgetops and shoulder slopes; on Warm Springs Ridge

Composition

Schaffenaker soil and similar soils: 45 percent
Rock outcrop: 40 percent
Dissimilar inclusions: 15 percent

Typical Profile

Schaffenaker
Surface layer:
0 to 1 inch—organic duff from hardwood leaf litter
1 to 2 inches—very dark brown loamy sand

Subsurface layer:
2 to 4 inches—brown loamy sand

Subsoil:
4 to 18 inches—yellowish brown gravelly loamy sand

Underlying material:
18 to 24 inches—yellowish brown gravelly loamy sand

Bedrock:
24 inches—moderately weathered, light gray sandstone

Rock outcrop

In most places the Rock outcrop occurs as areas of nearly vertical sandstone bluffs that range from 10 to 50 feet in height.

Soil Properties and Qualities

Schaffenaker
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low

Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate or severe
Percentage of the surface covered by rock fragments: 15 to 50 percent covered with boulders and stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 20 to 40 inches
Bedrock type: Hard sandstone

Minor Components

Dissimilar inclusions:
- Small areas of the very deep Vanderlip soils
- Small areas of the well drained Dekalb soils
- Soils that are less than 20 inches deep over bedrock

Similar soils:
- Soils with slopes of more than 65 percent
- Soils with slopes of less than 35 percent
- Extremely bouldery soils with 3 to 15 percent of the surface covered with boulders

Use and Management

Uses: Most areas of this map unit are forested with trees that have low commercial value. Because of the very steep slopes, the Rock outcrop, and the very severe hazard of erosion, this map unit is suited only to woodland, wildlife habitat, and recreational activities. Many areas are in Cacapon State Park (fig. 11).

Cropland
Suitability: Not suited

Pasture and Hayland
Suitability: Not suited

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a very severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes and the Rock outcrop.
- The large boulders on the soil surface can hinder harvesting operations and damage equipment.
- The limited depth to bedrock, the low natural fertility and the droughtiness may cause moderate seedling mortality, especially on south aspects.
- Windthrow is a hazard because of the limited depth to bedrock in areas of the Schaffenaker soil.

Management measures:
- Because of the very steep slopes, the Rock outcrop, and the boulders on the soil surface, special logging methods, such as cable yarding, should be considered.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed to take full advantage of spring rains.

Community Development
Suitability: Not suited

Figure 11.—An area of Schaffenaker-Rock outcrop complex, 35 to 65 percent slopes, rubbly, near the entrance to Cacapon State Park. The Schaffenaker soil formed in materials weathered from Oriskany Sandstone.

Management concerns:
- Because of the slope, the limited depth to bedrock, the Rock outcrop, and the rapid permeability of the soil, this map unit is unsuited to community development.

Interpretive Groups

Land capability classification: 8s
Prime farmland: No
Hydric soil: No

SnE—Schaffenaker-Vanderlip loamy sands, 15 to 35 percent slopes, very bouldery

Setting

Landscape position: Steep ridgetops and shoulder slopes on Warm Springs Ridge; Schaffenaker—mainly convex shoulder slopes; Vanderlip—concave to linear backslopes
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Schaffenaker soil and similar soils: 45 percent
Vanderlip soil and similar soils: 40 percent
Dissimilar inclusions: 15 percent

Typical Profile

Schaffenaker
Surface layer:
0 to 1 inch—organic duff from hardwood leaf litter
1 to 2 inches—very dark brown loamy sand

Subsurface layer:
2 to 4 inches—brown loamy sand

Subsoil:
4 to 18 inches—yellowish brown gravelly loamy sand

Underlying material:
18 to 24 inches—yellowish brown gravelly loamy sand

Bedrock:
24 inches—moderately weathered, light gray sandstone

Vanderlip
Surface layer:
0 to 2 inches—organic duff from hardwood leaf litter
2 to 6 inches—dark brown loamy sand

Subsurface layer:
6 to 13 inches—dark yellowish brown gravelly loamy sand

Subsoil:
13 to 26 inches—yellowish brown very cobbly loamy sand
26 to 38 inches—yellowish brown sand
38 to 50 inches—brownish yellow sand with a few thin bands of strong brown loamy sand
50 to 65 inches—very pale brown very bouldery sand with common bands of strong brown loamy sand

Soil Properties and Qualities

Schaffenaker
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 0.1 to 3 percent covered with boulders and stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Hard sandstone

Vanderlip
Drainage class: Somewhat excessively drained

Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 0.1 to 3 percent covered with boulders and stones
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: Low
Depth to bedrock: More than 8 feet
Bedrock type: Hard sandstone

Minor Components

Dissimilar inclusions:
- The very deep Hazleton soils
- The moderately well drained Sideling soils
- The well drained Dekalb soils
- Soils that are less than 20 inches deep over bedrock
- Small areas of rock outcrop

Similar soils:
- Soils with slopes of more than 35 percent
- Soils with slopes of less than 15 percent
- Extremely bouldery soils with 3 to 15 percent of the surface covered with boulders

Use and Management

Uses: Most areas of these Schaffenaker and Vanderlip soils are wooded.

Cropland
Suitability: Not suited
Management concerns:
- The steep slopes, the droughtiness, the low natural fertility, and the boulders on the soil surface make it impractical to grow cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- The slope and the boulders on the soil surface make the operation of conventional equipment used in clipping and applying fertilizer difficult.
- If pastures are overgrazed, erosion is a very severe hazard in areas where the plant cover has been destroyed.
- The droughtiness limits forage production during midsummer.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a hazard on logging roads and skid trails.

- The large boulders on the soil surface can hinder harvesting operations and damage equipment.
- The droughtiness results in a high seedling mortality rate, especially on south aspects.
- Windthrow is a hazard because of the limited depth to bedrock in areas of the Schaffenaker soil.

Management measures:
- The hazard of erosion can be reduced by building logging roads and skid trails on the contour; seeding logging roads, log landings, and areas that have been cut and filled to perennial grasses and legumes; and installing water bars and culverts.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed to take full advantage of spring rains.

Community Development

Suitability: Poorly suited
Management concerns:
- The slope is a severe limitation on sites for buildings, septic tank absorption fields, and local roads and streets. Extensive land shaping is necessary in most areas.
- The depth to hard bedrock is a severe limitation in areas of the Schaffenaker soil. In many areas the bedrock has to be blasted before it can be excavated.
- This soil generally is not suitable as a site for septic tank absorption fields because it is rapidly permeable and has poor filtering capacity. Septic tank effluent may not be adequately filtered before it reaches the ground water.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south-facing slopes.
- Boulders may interfere with the operation of construction equipment.
- The hazard of erosion is moderate or severe on construction sites.

Management measures:
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in most areas.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

SnF—Schaffenaker-Vanderlip loamy sands, 35 to 65 percent slopes, very bouldery

Setting

Landscape position: Very steep ridgetops and shoulder slopes on Warm Springs Ridge; Schaffenaker—mainly on convex shoulder slopes; Vanderlip—concave to linear backslopes
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Schaffenaker soil and similar soils: 40 percent
Vanderlip soil and similar soils: 40 percent
Dissimilar inclusions: 20 percent

Typical Profile

Schaffenaker
Surface layer:
0 to 1 inch—organic duff from hardwood leaf litter
1 to 2 inches—very dark brown loamy sand

Subsurface layer:
2 to 4 inches—brown loamy sand

Subsoil:
4 to 18 inches—yellowish brown gravelly loamy sand

Underlying material:
18 to 24 inches—yellowish brown gravelly loamy sand

Bedrock:
24 inches—moderately weathered, light gray sandstone

Vanderlip
Surface layer:
0 to 2 inches—organic duff from hardwood leaf litter
2 to 6 inches—dark brown loamy sand

Subsurface layer:
6 to 13 inches—dark yellowish brown gravelly loamy sand

Subsoil:
13 to 26 inches—yellowish brown very cobbly loamy sand
26 to 38 inches—yellowish brown sand
38 to 50 inches—brownish yellow sand with a few thin bands of strong brown loamy sand
50 to 65 inches—very pale brown very bouldery sand with common bands of strong brown loamy sand

Soil Properties and Qualities

Schaffenaker
Drainage class: Somewhat excessively drained
Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 0.1 to 3 percent covered with boulders and stones
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Hard sandstone

Vanderlip
Drainage class: Somewhat excessively drained

Permeability: Rapid (6.0 to 20 inches per hour)
Available water capacity: Low or moderate
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: 0.1 to 3 percent covered with boulders and stones
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0)
Surface runoff: Low
Depth to bedrock: More than 8 feet
Bedrock type: Hard sandstone

Minor Components

Dissimilar inclusions:
- The very deep Hazleton soils
- The moderately well drained Sideling soils
- The well drained Dekalb soils
- Soils that are less than 20 inches deep over bedrock
- Small areas of rock outcrop

Similar soils:
- Soils with slopes of more than 65 percent
- Soils with slopes of less than 35 percent
- Rubbly soils with 15 to 50 percent of the surface covered with boulders

Use and Management

Uses: Most areas of these Schaffenaker and Vanderlip soils are used as woodland.

Cropland
Suitability: Not suited
Management concerns:
- The very steep slopes, the droughtiness, the low natural fertility, and the boulders on the surface make it impractical to grow cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the severe hazard of erosion, and the boulders on the surface, these soils are not suited to pasture or hay.

Woodland
Potential productivity: Moderate
Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the very steep slopes.
- The large boulders on the soil surface can hinder harvesting operations and damage equipment.
- The droughtiness results in a high seedling mortality rate, especially on south aspects.
- Windthrow is a hazard because of the limited depth to bedrock in areas of the Schaffenaker soil.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment.

- Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed to take full advantage of spring rains.

Community Development
Suitability: Not suited
Management concerns:
- Because of the very steep slope, the limited depth to bedrock, and the rapid permeability, these soils are generally unsuited to community development.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

SxC—Sideling gravelly loam, 3 to 15 percent slopes, extremely stony

Setting

Landscape position: Gently sloping and strongly sloping, linear to slightly convex mountain benches and footslopes

Composition

Sideling soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 3 inches—organic duff from hardwood leaf litter
3 to 5 inches—very dark grayish brown gravelly loam

Subsurface layer:
5 to 7 inches—dark yellowish brown gravelly loam

Subsoil:
7 to 31 inches—yellowish brown gravelly loam
31 to 35 inches—yellowish brown gravelly clay loam
35 to 50 inches—strong brown channery clay with light gray and reddish brown redoximorphic features
50 to 62 inches—strong brown very flaggy clay loam with light gray and yellowish red redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour) in the upper part and slow (0.06 to 0.2 inch per hour) in the lower part
Available water capacity: High

Depth to the seasonal high water table: 2.5 to 3.5 feet
Flooding: None
Shrink-swell potential: Low in the upper part of the subsoil and moderate in the lower part
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid throughout (pH 3.5 to 5.5)
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately deep Berks soils
- The moderately deep Dekalb soils
- The very deep, well drained Hazleton soils
- Small areas of the poorly drained Andover soils in concave drainageways

Similar soils:
- The moderately well drained Buchanan soils

Use and Management

Uses: Most areas of this Sideling soil are used as woodland. A few have been cleared and are used for pasture, and a few are used as homesites.

Cropland
Suitability: Not suited
Management concerns:
- Because of the stones and boulders on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a moderate or severe hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The slope and the stones on the soil surface make the operation of conventional equipment used for clipping and applying lime and fertilizer difficult.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- The large stones and boulders on the soil surface can hinder harvesting operations and damage equipment.

- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and log landings to perennial grasses and legumes; and installing water bars and culverts.

Community Development

Suitability: Poorly suited

Management concerns:
- The seasonal high water table is the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- This soil has slowly permeable layers in the subsoil. The restricted permeability is a severe limitation on sites for septic tank absorption fields.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Water may seep from cutbanks during wet periods.
- The slope and the potential for frost action are limitations on sites for local roads and streets.
- The wetness is a limitation on sites for local roads and streets. Because the soil is soft when wet, the pavement cracks under heavy loads.
- The stones and boulders on the soil surface may interfere with construction and with the establishment of lawns and landscaping.
- Erosion on construction sites is a moderate or severe hazard in unprotected areas.

Management measures:
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Installing drainage tile upslope from the absorption field helps to overcome the wetness.
- Enlarging the absorption field, installing alternating absorption fields, and installing distribution lines on the contour and as shallow as possible help to compensate for the restricted permeability in the lower part of the subsoil.
- Roads and streets should be built on the contour.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 6s
Prime farmland: No
Hydric soil: No

SxE—Sideling gravelly loam, 15 to 35 percent slopes, extremely stony

Setting

Landscape position: Moderately steep and steep, linear to slightly convex mountain benches and footslopes

Composition

Sideling soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 3 inches—organic duff from hardwood leaf litter
3 to 5 inches—very dark grayish brown gravelly loam

Subsurface layer:
5 to 7 inches—dark yellowish brown gravelly loam

Subsoil:
7 to 31 inches—yellowish brown gravelly loam
31 to 35 inches—yellowish brown gravelly clay loam
35 to 50 inches—strong brown channery clay with light gray and reddish brown redoximorphic features
50 to 62 inches—strong brown very flaggy clay loam with light gray and yellowish red redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour) in the upper part and slow (0.06 to 0.2 inch per hour) in the lower part
Available water capacity: High
Depth to the seasonal high water table: 2.5 to 3.5 feet
Flooding: None
Shrink-swell potential: Low in the upper part of the subsoil and moderate in the lower part
Hazard of water erosion: Severe or very severe
Percentage of the surface covered by rock fragments: 3 to 15 percent covered with stones and boulders
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid throughout (pH 3.5 to 5.5)
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The moderately deep Berks soils
- The moderately deep Calvin soils
- The very deep, well drained Hazleton soils
- Small areas of the poorly drained Andover soils along drainageways and in depressions

Similar soils:
- The moderately well drained Buchanan soils

Use and Management

Uses: Most areas of this Sideling soil are used as woodland. A few are used as homesites.

Cropland
Suitability: Not suited

Management concerns:
- Because of the steep slopes and the stones on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; difficult to manage for pasture
Management concerns:
- The slope and the stones on the soil surface make the operation of conventional equipment used for clipping and applying lime and fertilizer difficult.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Erosion is a very severe hazard if the sod is removed by overgrazing.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Restricted grazing during wet periods helps to prevent compaction and poor tilth.
- Applying lime and fertilizer according to the results of soil tests helps to ensure the maximum growth of forage, especially legumes.

Woodland
Potential productivity: Moderately high
Management concerns:
- The large stones and boulders on the surface can hinder harvesting operations and damage equipment.
- Seedling mortality is a concern on south-facing slopes.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and log landings to perennial grasses and legumes; and installing water bars and culverts.

Community Development
Suitability: Poorly suited
Management concerns:
- The slope and the seasonal high water table are the main limitation affecting building site development, septic tank absorption fields, and local roads and streets.
- This soil has slowly permeable layers in the subsoil. The restricted permeability is a severe limitation on sites for septic tank absorption fields.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Water may seep from cutbanks during wet periods.
- The slope and the potential for frost action are limitations on sites for local roads and streets.
- The wetness is a limitation on sites for local roads and streets. Because the soil is soft when wet, the pavement cracks under heavy loads.
- The stones and boulders may interfere with construction and with the establishment of lawns and landscaping.
- Erosion on construction sites is a very severe hazard in unprotected areas.

Management measures:
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in most areas.

- Installing drainage tile upslope from the absorption field helps to overcome the wetness.
- Enlarging the absorption field, installing alternating absorption fields, and installing distribution lines on the contour and as shallow as possible help to compensate for the restricted permeability in the lower part of the subsoil.
- Roads and streets should be built on the contour.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

SyE—Sideling gravelly loam, 15 to 35 percent slopes, rubbly

Setting

Landscape position: Moderately steep or steep, linear to slightly convex mountain benches and footslopes

Composition

Sideling soil and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Typical Profile

Surface layer:
0 to 3 inches—organic duff from hardwood leaf litter
3 to 5 inches—very dark grayish brown gravelly loam

Subsurface layer:
5 to 7 inches—dark yellowish brown gravelly loam

Subsoil:
7 to 31 inches—yellowish brown gravelly loam
31 to 35 inches—yellowish brown gravelly clay loam
35 to 50 inches—strong brown channery clay with light gray and reddish brown redoximorphic features
50 to 62 inches—strong brown very flaggy clay loam with light gray and yellowish red redoximorphic features

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderately slow (0.2 to 0.6 inch per hour) in the upper part and slow (0.06 to 0.2 inch per hour) in the lower part
Available water capacity: High
Depth to the seasonal high water table: 2.5 to 3.5 feet
Flooding: None
Shrink-swell potential: Low in the upper part of the subsoil and moderate in the lower part

Hazard of water erosion: Severe or very severe
Percentage of the surface covered by rock fragments: 15 to 50 percent covered with stones and boulders (fig. 12)
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid throughout (pH 3.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- The very deep, well drained Hazleton soils
- Small areas of the poorly drained Andover soils along drainageways and in depressions

Similar soils:
- The moderately well drained Buchanan soils

Figure 12.—An area of Sideling gravelly loam, 15 to 35 percent slopes, rubbly.

Use and Management

Uses: This Sideling soil is used as woodland.

Cropland
Suitability: Not suited
Management concerns:
- Because of the steep slopes and the stones on the surface, this soil is not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited
Management concerns:
- Because of the steep slopes and the stones and boulders on the surface, this soil is not suited to hay or pasture.

Woodland
Potential productivity: Moderately high
Management concerns:
- The large stones and boulders on the soil surface can hinder harvesting operations and damage equipment.
- Seedling mortality is a concern on south-facing slopes.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Erosion can be minimized by building roads and skid trails on the contour; seeding roads, trails, and log landings to perennial grasses and legumes; and installing water bars and culverts.

Community Development
Suitability: Poorly suited
Management concerns:
- The slope, the stones on the soil surface, and the seasonal high water table are the main limitations affecting building site development, septic tank absorption fields, and local roads and streets.
- This soil has slowly permeable layers in the subsoil. The restricted permeability is a severe limitation on sites for septic tank absorption fields.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- Water may seep from cutbanks during wet periods.
- The slope and the potential for frost action are limitations affecting local roads and streets.
- The wetness is a limitation affecting local roads and streets. Because the soil is soft when wet, the pavement cracks under heavy loads.
- The stones and boulders may interfere with construction and with the establishment of lawns and landscaping.
- Erosion on construction sites is a very severe hazard in unprotected areas.

Management measures:
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in most areas.
- Installing drainage tile upslope from the absorption field helps to overcome the wetness.
- Enlarging the absorption field, installing alternating absorption fields, and installing distribution lines on the contour and as shallow as possible help to compensate for the restricted permeability in the lower part of the subsoil.

- Roads and streets should be built on the contour.
- Installing a drainage system and providing a suitable road base that includes the installation of properly designed geotextiles help to prevent the road damage caused by wetness and low strength.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 7s
Prime farmland: No
Hydric soil: No

Ta—Tioga fine sandy loam

Setting

Landscape position: Nearly level flood plains; mainly along the Cacapon River

Composition

Tioga soil and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Typical Profile

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

Subsurface layer:
8 to 13 inches—brown sandy loam

Subsoil:
13 to 22 inches—dark brown loam
22 to 36 inches—dark brown sandy loam

Underlying material:
36 to 41 inches—dark yellowish brown very gravelly loamy sand
41 to 45 inches—dark yellowish brown sandy loam
45 to 60 inches—dark yellowish brown extremely gravelly loamy sand

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour) in the upper part and moderate to rapid (0.6 inch to 20.0 inches per hour) in the lower part
Available water capacity: Moderate or high
Depth to the seasonal high water table: 3 to 6 feet
Flooding: Frequency—occasional (5 to 50 percent chance in any year); duration—brief
Shrink-swell potential: Low
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: High
Reaction: In unlimed areas, strongly acid to neutral (pH 5.1 to 7.3) in the solum and moderately acid to neutral (pH 5.6 to 7.3) in the underlying material
Surface runoff: Very low
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar soils:
- The moderately well drained Lindside soils
- The moderately well drained Philo soils
- Sand and gravel bars that are directly adjacent to streams and are subject to frequent flooding

Similar soils:
- The well drained Combs soils
- The well drained Pope soils
- Soils that have a gravelly surface layer

Use and Management

Uses: Most areas of this Tioga soil have been cleared and are used for cultivated crops or hay.

Cropland
Suitability: Suited
Management concerns:
- This soil can be cropped year after year if it is properly protected.
- The flooding occasionally delays field operations or damages crops.
- This soil is subject to streambank erosion in some areas.
- To protect ground water and nearby streams, nutrients in manure and fertilizer applications should not exceed the plant nutrient requirements.

Management measures:
- Conservation tillage, winter cover crops, and crop residue management help to control erosion and to maintain fertility and tilth.
- A crop rotation that includes grasses and legumes helps to reduce nutrient losses, improve soil structure, and provide nitrogen for use by subsequent crops.
- Leaving a border of trees along streams helps to prevent streambank erosion and protect water quality.
- Designing fertilizer and manure applications to meet crop nutrient needs, using split fertilizer applications, and applying fertilizer in bands minimize the loss of nutrients by leaching.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface runoff, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The flooding occasionally deposits debris on the grassland.
- Unrestricted access to streams by livestock increases the hazards of streambank erosion and water pollution.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Streambanks should be fenced, and access to streams by livestock should be restricted to protected crossings.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of plants, especially legumes.

Woodland
Potential productivity: High

Management concerns:
- Competition from weeds may slow the growth of planted tree seedlings.

Management measures:
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.

Community Development

Suitability: Not suited

Management concerns:
- Because of the flooding, this soil is generally unsuited to building site development and septic tank absorption fields.
- Because of the flooding, this soil is severely limited as a site for local roads and streets.
- Excavations are often unstable and are subject to caving.

Management measures:
- A better suited soil should be considered as a site for buildings and septic tank absorption fields.
- Trench walls should be reinforced to prevent caving.

Interpretive Groups

Land capability classification: 2w
Prime farmland: Yes
Hydric soil: No

TyA—Tygart silt loam, 0 to 3 percent slopes

Setting

Landscape position: Nearly level, low stream terraces; mainly along Sleepy Creek and, to a lesser extent, along the Cacapon River and the Potomac River

Composition

Tygart soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsoil:
6 to 9 inches—brown silt loam
9 to 17 inches—yellowish brown silty clay loam with gray and strong brown redoximorphic features
17 to 32 inches—light brownish gray silty clay with yellowish brown and dark reddish brown redoximorphic features
32 to 46 inches—light brownish gray silty clay loam with yellowish brown and reddish brown redoximorphic features

Underlying material:
46 to 60 inches—gray silty clay loam with strong brown and reddish brown redoximorphic features

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Slow (0.06 to 0.2 inch per hour)

Available water capacity: Moderate or high
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Flooding: None
Shrink-swell potential: Moderate in the subsoil
Hazard of water erosion: Slight
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Surface runoff: High
Depth to bedrock: More than 60 inches

Minor Components

Dissimilar inclusions:
- Poorly drained Melvin soils on flood plains
- The poorly drained Brinkerton soils on the higher upland toeslopes
- The moderately well drained Ernest soils on the higher upland footslopes
- The moderately well drained Monongahela soils

Similar soils:
- Soils that are loamy in the subsoil
- Soils that are moderately acid or slightly acid
- Soils with slopes of more than 3 percent

Use and Management

Uses: Most areas of this Tygart soil are used for hay and pasture. Some are used for cultivated crops. A few areas are forested.

Cropland
Suitability: Suited if the soil is adequately drained
Management concerns:
- Crops can be grown year after year if the soil is adequately protected.
- The seasonal wetness may delay tilling and planting in the spring.
- Drainage is difficult because of the slow permeability in the subsoil.

Management measures:
- Conservation tillage, deferment of tillage when the soil is wet, winter cover crops, a crop rotation that includes hay, and crop residue management help to maintain soil tilth and fertility and to control water erosion.

Pasture and Hayland
Suitability: Suited (better suited to grasses than to legumes because of the seasonal high water table)
Management concerns:
- Establishing and maintaining a healthy cover of sod and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- Because the soil is soft when wet, grazing early in spring damages the sod.

Management measures:
- Proper stocking rates, a planned grazing system, and deferred grazing during wet periods help to keep pastures in good condition.
- Grazing should be deferred in spring until the soil is firm.
- Water-tolerant species should be selected for seeding.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forage plants.

Woodland
Potential productivity: Moderately high
Management concerns:
- The use of vehicular equipment is restricted during wet periods because this soil is soft when wet.
- Competition from weeds may slow the growth of planted tree seedlings.
- When the soil is wet, trees are susceptible to windthrow.

Management measures:
- The tree species that can withstand the seasonal wetness should be selected for planting.
- The addition of roadfill and gravel is needed on sites for year-round logging roads.
- Adequate site preparation helps to control initial plant competition in tree plantations, and spraying helps to control subsequent competition.
- Windthrow can be minimized by harvest methods that do not leave the remaining trees widely spaced.

Community Development
Suitability: Poorly suited
Management concerns:
- The wetness is the main limitation of this soil on sites for buildings, especially buildings with basements.
- The seasonal wetness limits excavation and trafficability and may delay construction activities in the winter and spring.
- The wetness and the slow permeability severely limit this soil as a site for septic tank absorption fields.
- The low strength and the wetness are limitations on sites for local roads and streets. Because this soil is soft when wet, the pavement cracks under heavy loads.

Management measures:
- Buildings can be constructed on well compacted fill material, which raises the site a sufficient distance above the water table.
- The wetness can be reduced by installing a drainage system around structures with basements or crawl spaces.
- An alternative system or a better suited soil should be considered for onsite sewage disposal.
- Constructing roads on raised fill material and installing a drainage system help to overcome the low strength and the wetness.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: 3w
Prime farmland: No
Hydric soil: No

Ua—Udorthents, smoothed

Setting

These soils are in nearly level to very steep areas that have been drastically disturbed by excavating, grading, filling, or a combination of these practices; most areas of the soils are the result of road construction or the construction of commercial or industrial buildings, earthen dams, schools, or recreational sites, such as ball fields (fig. 13). Many areas of these soils are in the Warm Springs Run watershed, in the vicinity of Berkeley Springs, or along U.S. Route 522.

Figure 13.—A ball field constructed in an area of Udorthents, smoothed. Commonly called fill material, these soils are in areas that excavation has drastically disturbed. The properties of these soils are quite variable. Onsite investigation is needed to determine the suitability of these soils for most uses.

Composition

Udorthents: 95 percent
Dissimilar inclusions: 5 percent (native soils that occur mainly along the margins of the mapped areas)

Typical Profile

Because the characteristics of these soils vary so much, a typical profile is not given. The surface layer of these soils ranges from sandy loam to clay, with a wide range in size, amount, and kind of rock fragments. Generally, the soils derived from materials excavated from shale are loamy or clayey in texture, while the soils derived from materials excavated from areas underlain by sandstone are sandy in texture.

Soil Properties and Qualities

Drainage class: Varies
Permeability: Varies; commonly slow or very slow because the soils have been compacted by heavy equipment
Available water capacity: Varies
Depth to the seasonal high water table: Varies
Flooding: Varies
Shrink-swell potential: Varies
Hazard of water erosion: Varies according to slope
Percentage of the surface covered by rock fragments: Varies
Natural fertility: Varies, but generally low
Reaction: Varies; however, generally very strongly acid or strongly acid in unlimed areas

Surface runoff: Varies according to slope
Depth to bedrock: Varies from very shallow in excavated areas to very deep in filled areas
Bedrock type: Varies; exposed bedrock in some of the excavated areas

Minor Components

Dissimilar inclusions:
- The moderately deep Berks soils on convex uplands
- The shallow Weikert soils on convex uplands
- The somewhat poorly drained Clearbrook soils on linear to concave uplands
- The moderately well drained Ernest soils on concave footslopes
- Areas of Urban land

Use and Management

Uses: Most areas of these soils are used as road rights-of-way, for commercial or industrial purposes, as school grounds, or for recreational activities.

Cropland
Suitability: Generally not suited

Pasture and Hayland
Suitability: Generally not suited

Woodland
Potential productivity: Varies but generally low
Management concerns:
- Because these soils commonly are compacted and have a low organic matter content, it may be necessary to add organic matter in the form of compost or peat moss to the soils when trees are planted.

Community Development
Suitability: These soils vary too much to rate. An onsite investigation is necessary to determine the suitability of these soils as sites for sanitary facilities, buildings, and other development.

Interpretive Groups

Land capability classification: Not assigned
Prime farmland: No
Hydric soil: No

Uu—Urban land-Udorthents complex, 0 to 25 percent slopes

Setting

This map unit consists of nearly level to moderately steep areas that are covered by buildings, roads, parking lots and other urban structures and areas of fill material that has been drastically disturbed by excavating, grading, filling, or a combination of these practices. It is mainly in the town of Berkeley Springs and along the U.S. Route 522 corridor. The areas of Udorthents and Urban land are so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Udorthents: 45 percent
Urban land: 45 pecent
Dissimilar inclusions: 10 percent (native soils)

Typical Profile

Udorthents

Because the characteristics of these soils vary so much, a typical profile is not given. The surface layer of these soils ranges from sandy loam to clay, with a wide range in size, amount, and kind of rock fragments. Generally, the soils derived from materials excavated from shale are loamy or clayey in texture, while the soils derived from materials excavated from areas underlain by sandstone are sandy in texture.

Urban land

The Urban land is a nonsoil area; therefore, a typical profile is not given.

Soil Properties and Qualities

Udorthents

Drainage class: Varies
Permeability: Varies; commonly slow or very slow because the soils have been compacted by heavy equipment
Available water capacity: Varies
Depth to the seasonal high water table: Varies
Flooding: Varies
Shrink-swell potential: Varies
Hazard of water erosion: Varies according to slope
Percentage of the surface covered by rock fragments: Varies
Natural fertility: Varies, but generally low
Reaction: Varies; however, generally very strongly acid or strongly acid in unlimed areas
Surface runoff: Varies according to slope
Depth to bedrock: Varies from very shallow in excavated areas to very deep in filled areas
Bedrock type: Varies; exposed bedrock in some of the excavated areas

Urban land

In areas of Urban land, the original soil has been filled over or otherwise destroyed prior to construction. Urban land consists of areas where at least 90 percent of the surface is covered by asphalt, concrete, or other impervious material.

Minor Components

Dissimilar inclusions:
- The moderately deep Berks soils and the shallow Weikert soils on convex uplands
- The somewhat poorly drained Clearbrook soils on linear to concave uplands
- The moderately well drained Ernest soils and the moderately well drained Buchanan soils on concave footslopes
- The moderately well drained Philo soils on flood plains
- The very deep Vanderlip soils on steep side slopes on Warm Springs Ridge

Use and Management

Uses: This map unit is not suited to cultivated crops, pasture, or woodland. Most areas have been used for community development. Open areas are used mainly for lawns, gardens, or recreational activities.

Community Development

Management measures:
- Sanitary facilities should be connected to public sewers and sewage treatment facilities.
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.

Interpretive Groups

Land capability classification: Not assigned
Prime farmland: No
Hydric soil: No

W—Water

Setting

This map unit consists of farm ponds and lakes that are more than 0.5 acre in size. Most of these water bodies were formed by building an embankment or dam of suitable soil material across a stream or watercourse to impound surface waters. Some were built by excavating a pit into a ground-water aquifer.

Use and Management

The ponds and lakes are used for a variety of purposes, including water for livestock, fish production, fire protection, wildlife habitat, recreation, erosion control, and landscape improvement.

WaB—Weikert channery silt loam, 3 to 8 percent slopes

Setting

Landscape position: Gently sloping, convex, dissected hilltops and ridges

Composition

Weikert soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

Surface layer:
0 to 6 inches—dark brown channery silt loam

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

Underlying material:
11 to 14 inches—yellowish brown extremely channery silt loam

Bedrock:
14 inches—tilted and fractured, olive brown shale

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Moderate
Percentage of the surface covered by rock fragments: None
Natural fertility: Very low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The somewhat poorly drained Clearbrook soils in depressions and on head slopes
- The very shallow Rough soils
- Small areas of rock outcrop

Similar soils:
- The moderately deep Berks soils
- Small areas of the moderately deep Calvin soils and the shallow Klinesville soils, which have a reddish brown subsoil
- Soils with slopes of less than 3 percent or more than 8 percent

Use and Management

Uses: Most areas of this Weikert soil are wooded. A few areas have been cleared and are used for pasture or as homesites.

Cropland
Suitability: Poorly suited (better suited to hay and pasture)
Management concerns:
- The hazard of erosion is moderate in unprotected areas.
- Severe droughtiness during the growing season and the very low natural fertility are management concerns.

Management concerns:
- Conservation tillage, contour farming, cover crops, a cropping sequence that includes grasses and legumes, and crop residue management help to control erosion and to maintain fertility and tilth.
- Because of the droughtiness, this soil is better suited to early maturing small grain than to late maturing crops, such as corn.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness limits forage production during midsummer.
- Water for livestock is scarce in areas of this soil, but potential sites where ponds or springs can be developed are generally available along nearby drainageways.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- The limited depth to bedrock, the low natural fertility, and the droughtiness may cause a moderate seedling mortality rate.

- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Erosion can be minimized by building roads and skid trails on the contour and seeding roads, trails, and log landings to perennial grasses and legumes.

Community Development
Suitability: Poorly suited
Management concerns:
- The hazard of erosion is moderate on construction sites.
- The depth to bedrock is a severe limitation on sites for septic tank absorption fields.
- The depth to bedrock is a limitation affecting excavations, building site development, and road construction. In most areas, however, the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.
- The rock fragments in the surface layer and the droughtiness make the establishment of lawns difficult.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Selecting areas of the deepest soils for septic tank absorption fields, installing the absorption fields on the contour, and oversizing the absorption fields help to overcome the depth to bedrock.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks. Seeded areas should be mulched with straw.

Interpretive Groups

Land capability classification: 3e
Prime farmland: No
Hydric soil: No

WaC—Weikert channery silt loam, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, dissected hilltops, ridges, and shoulder slopes

Composition

Weikert soil and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Typical Profile

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

Subsoil:
5 to 10 inches—yellowish brown very channery silt loam

Underlying material:
10 to 13 inches—yellowish brown extremely channery silt loam

Bedrock:
13 inches—tilted and fractured, olive brown shale

Soil Properties and Qualities

Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Very low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The somewhat poorly drained Clearbrook soils on concave head slopes
- The very shallow Rough soil
- Small areas of rock outcrop

Similar soils:
- The moderately deep Berks soil
- Small areas of the moderately deep Calvin soils and the shallow Klinesville soils, which have a reddish brown subsoil
- Soils that have slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of this Weikert soil are wooded. A few have been cleared and are used for pasture or as homesites.

Cropland
Suitability: Not suited
Management concerns:
- The severe hazard of erosion, the severe droughtiness during the growing season, and the very low natural fertility make this soil unsuited to conventional row crops.

Pasture and Hayland
Suitability: Suited to pasture; not suited to hay
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.
- Water for livestock is scarce in areas of this map unit, but potential sites where ponds or springs can be developed are generally available along nearby drainageways.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.

- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland
Potential productivity: Moderate
Management concerns:
- The limited depth to bedrock, very low natural fertility, and droughtiness of this soil may cause a moderate seedling mortality rate.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Tree planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Building logging roads and skid trails on the contour and seeding the roads, log landings, and trails to perennial grasses and legumes reduce the hazard of erosion.

Community Development
Suitability: Poorly suited
Management concerns:
- The hazard of erosion is severe on construction sites.
- Depth to bedrock is a severe limitation on sites for septic tank absorption fields.
- The depth to bedrock and the slope are limitations affecting excavation, building site development, and road construction. In most areas, however, the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south aspects.
- The rock fragments in the surface layer and the droughtiness make the establishment of lawns difficult.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Selecting areas of the deepest soils as sites for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field can help to overcome the depth to bedrock and the slope.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Areas that have been seeded should be mulched with straw.

Interpretive Groups

Land capability classification: 4e
Prime farmland: No
Hydric soil: No

WbC—Weikert-Berks channery silt loams, 8 to 15 percent slopes

Setting

Landscape position: Strongly sloping, convex, dissected uplands; Weikert—on the more sloping shoulder slopes and nose slopes; Berks—on the lesser sloping ridgetops and shoulder slopes

Note: The two soils occur as areas so intermingled on the landscape that it was impractical to map them separately.

Composition

Weikert soil and similar soils: 45 percent
Berks soil and similar soils: 40 percent
Dissimilar inclusions: 15 percent

Typical Profile

Weikert
Surface layer:
0 to 6 inches—dark brown channery silt loam

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

Underlying material:
14 to 18 inches—yellowish brown extremely channery silt loam

Bedrock:
18 inches—gray, fractured shale

Berks
Surface layer:
0 to 7 inches—brown channery silt loam

Subsoil:
7 to 12 inches—brown channery silt loam
12 to 21 inches—yellowish brown and strong brown very channery silt loam

Underlying material:
21 to 25 inches—strong brown and yellowish brown extremely channery silt loam

Bedrock:
25 inches—yellowish brown, fractured shale

Soil Properties and Qualities

Weikert
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Low
Depth to bedrock: 10 to 20 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low

Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The somewhat poorly drained Clearbrook soils and the somewhat poorly drained Cavode soils on concave head slopes and along drainageways
- Small areas of the moderately well drained Ernest soils on footslopes
- Small areas of the very deep Rushtown soils on slopes adjacent to major streams

Similar soils:
- Small areas of the moderately deep Calvin soils and the shallow Klinesville soils, which have a reddish brown subsoil
- Soils that are more than 40 inches deep over bedrock
- Soils that have slopes of less than 8 percent or more than 15 percent

Use and Management

Uses: Most areas of these Weikert and Berks soils are wooded. Some have been cleared and are used for hay and pasture. A few are used for cultivated crops, orchards, or community development.

Cropland
Suitability: Limited (better suited to hay or pasture)
Management concerns:
- The hazard of erosion is severe in unprotected areas.
- Droughtiness during the growing season and the low natural fertility are management concerns.

Management measures:
- Conservation tillage, contour farming, contour stripcropping, cover crops, a cropping sequence that includes grasses and legumes, and crop residue management help to control erosion and to maintain fertility and tilth.
- Because of the droughtiness, these soils are better suited to early maturing small grain than to late maturing crops, such as corn.
- Leaving crop residue on the surface and adding other organic material help to conserve soil moisture.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum production.

Pasture and Hayland
Suitability: Suited
Management concerns:
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.

- Water for livestock is scarce in areas of this map unit, but potential sites where ponds or springs can be developed are generally available along nearby drainageways.
- Erosion is a severe hazard if the sod is removed by overgrazing.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland

Potential productivity: Moderate or moderately high

Management concerns:
- Seedling mortality is a concern in areas of the Weikert soil because of the droughtiness.
- Erosion is a hazard on logging roads and skid trails.

Management measures:
- Planting should be timed so that seedlings can take full advantage of spring rains.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Building logging roads and skid trails on the contour and seeding the roads, log landings, and trails to perennial grasses and legumes reduce the hazard of erosion.

Community Development

Suitability: Poorly suited

Management concerns:
- The hazard of erosion is severe on construction sites.
- The depth to bedrock is a limitation on sites for septic tank absorption fields.
- The depth to bedrock and the slope are moderate limitations affecting excavations, building sites, and road construction. In most areas, however, the bedrock is soft enough to be excavated with conventional earthmoving equipment.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south-facing slopes.
- The rock fragments in the surface layer and the droughtiness make the establishment of lawns difficult.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Selecting areas of the deepest soils for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field can help to overcome the depth to bedrock and the slope.
- Buildings should be designed so that they conform to the natural slope of the land. Land shaping is necessary in some areas.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Areas that have been seeded should be mulched with straw.

Interpretive Groups

Land capability classification: 4e
Prime farmland: No
Hydric soil: No

WbD—Weikert-Berks channery silt loams, 15 to 25 percent slopes

Setting

Landscape position: Moderately steep, convex, dissected uplands; Weikert—on the more sloping shoulder slopes and nose slopes; Berks—on the lesser sloping ridgetops and shoulder slopes
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Weikert soil and similar soils: 50 percent
Berks soil and similar soils: 35 percent
Dissimilar inclusions: 15 percent

Typical Profile

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

Subsoil:
4 to 12 inches—yellowish brown very channery silt loam

Underlying material:
12 to 16 inches—yellowish brown extremely channery silt loam

Bedrock:
16 inches—gray, fractured shale

Berks
Surface layer:
0 to 5 inches—brown channery silt loam

Subsoil:
5 to 10 inches—brown channery silt loam
10 to 19 inches—yellowish brown and strong brown very channery silt loam

Underlying material:
19 to 23 inches—strong brown and yellowish brown extremely channery loam

Bedrock:
23 inches—yellowish brown shale

Soil Properties and Qualities

Weikert
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Medium

Depth to bedrock: 10 to 20 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Seasonal high water table: None
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The very shallow Rough soils
- Small areas of the very deep Rushtown soils on slopes adjacent to major streams
- Small areas of rock outcrop
- Small areas of the moderately well drained Ernest soils on footslopes
- Small areas of Philo soils that are subject to flooding and are on narrow flood plains along small streams
- Small areas of the somewhat poorly drained Clearbrook and Cavode soils on concave head slopes and along drainageways

Similar soils:
- Small areas of the moderately deep Calvin soils and the shallow Klinesville soils, which have a reddish brown subsoil
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 15 percent or more than 25 percent

Use and Management

Uses: Most areas of these Weikert and Berks soils are wooded. Some are used for hay and pasture. A few small areas have been used for community development.

Cropland
Suitability: Not suited
Management concerns:
- Because of the moderately steep slopes, the severe hazard of erosion, the droughtiness, and the low natural fertility, these soils are not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited to hay; limited suitability for pasture
Management concerns:
- Erosion is a severe hazard if the sod is removed by overgrazing.
- Establishing and maintaining a mixture of grasses and legumes and preventing overgrazing are major concerns in pastured areas.
- Overgrazing causes surface compaction, increases the runoff rate and the hazard of erosion, and reduces the vigor of the plant cover.
- The droughtiness of these soils limits forage production during midsummer.

- Water for livestock is scarce in areas of this map unit, but potential sites where ponds or springs can be developed are available along nearby drainageways in some areas.

Management measures:
- Proper stocking rates, a uniform distribution of grazing, and a planned grazing system help to keep pastures in good condition.
- Establishing warm-season grasses in pastures helps to increase forage production during midsummer.
- Applying lime and fertilizer according to the results of soil tests helps to ensure maximum growth of forages, especially legumes.

Woodland

Potential productivity: Moderate on south-facing slopes; moderate or moderately high on north-facing slopes

Management concerns:
- Erosion is a hazard on logging roads and skid trails.
- The slope is a moderate limitation affecting equipment operation.
- The limited depth to bedrock, the low natural fertility, and the droughtiness of these soils may cause a moderate seedling mortality rate, especially on south-facing slopes.

Management measures:
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Building logging roads on the contour or on the gentler slopes and seeding logging roads, skid trails, and log landings after the trees are logged also helps to prevent excessive erosion.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development

Suitability: Poorly suited

Management concerns:
- The hazard of erosion on construction sites is severe.
- The depth to bedrock and the slope are severe limitations on sites for septic tank absorption fields. Effluent from absorption fields may surface in downslope areas.
- The slope is a severe limitation affecting excavations, building sites, and road construction. Extensive land shaping is necessary in most areas.
- The bedrock may interfere with excavation for roads and foundations. In most areas, however, the bedrock is soft enough to excavate with conventional earthmoving equipment.
- Establishing and maintaining vegetation on roadbanks is difficult in areas of these droughty soils, especially on south-facing slopes.
- The rock fragments in the surface layer and the droughtiness make the establishment of lawns difficult.

Management measures:
- Maintaining the plant cover on construction sites, establishing a plant cover in unprotected areas, and providing for the proper disposal of surface runoff help to control erosion and sedimentation.
- Selecting areas of the deepest soils for septic tank absorption fields, installing the absorption field on the contour, and oversizing the absorption field can help to overcome the slope and the depth to bedrock.

- Buildings and roads should be designed so that they conform to the natural slope of the land.
- Drought-tolerant species, such as tall fescue and crownvetch, should be selected for planting on roadbanks.
- Seeded areas should be mulched with straw.

Interpretive Groups

Land capability classification: 6e
Prime farmland: No
Hydric soil: No

WkF—Weikert-Berks very channery silt loams, 25 to 70 percent slopes

Setting

Landscape position: Steep or very steep, convex, dissected uplands; Weikert—dominantly on south aspects and on the very steep shoulder slopes and nose slopes; Berks—dominantly on north aspects and on steep side slopes
Note: The two soils occur as areas so intermingled on the landscape that it was impractical to separate them in mapping.

Composition

Weikert soil and similar soils: 50 percent
Berks soil and similar soils: 35 percent
Dissimilar inclusions: 15 percent

Typical Profile

Weikert
Surface layer:
0 to 1 inch—slightly decomposed organic matter from hardwood leaf litter
1 to 3 inches—very dark grayish brown very channery silt loam

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

Bedrock:
14 inches—tilted and fractured, gray shale

Berks
Surface layer:
0 to 1 inch—slightly decomposed, organic matter from hardwood leaf litter
1 to 3 inches—dark brown very channery silt loam

Subsoil:
3 to 13 inches—dark yellowish brown very channery loam
13 to 25 inches—yellowish brown very channery silt loam

Bedrock:
25 inches—yellowish brown shale

Soil Properties and Qualities

Weikert
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid (2.0 to 6.0 inches per hour)
Available water capacity: Very low
Seasonal high water table: None

Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: Medium
Depth to bedrock: 10 to 20 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Berks
Drainage class: Well drained
Permeability: Moderate or moderately rapid (0.6 inch to 6.0 inches per hour)
Available water capacity: Very low or low
Depth to the seasonal high water table: More than 6 feet
Flooding: None
Shrink-swell potential: Low
Hazard of water erosion: Very severe
Percentage of the surface covered by rock fragments: None
Natural fertility: Low
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Surface runoff: High
Depth to bedrock: 20 to 40 inches
Bedrock type: Shale, siltstone, or fine grained sandstone; interbedded in many areas

Minor Components

Dissimilar inclusions:
- The moderately well drained Ernest soils on small, concave footslopes
- Small areas of the very shallow Rough soils
- Small areas of the very deep Rushtown soils on slopes adjacent to the major streams
- Small areas of the Philo or Pope soils that are subject to flooding and are on narrow flood plains along small streams
- Areas of rock outcrop

Similar soils:
- The somewhat excessively drained Dekalb soils
- The moderately deep Calvin soils and the shallow Klinesville soils, which have a reddish brown subsoil
- Soils that are more than 40 inches deep over bedrock
- Soils with slopes of less than 25 percent or more than 70 percent

Use and Management

Uses: Most areas of these Weikert and Berks soils are wooded. A few small areas have been cleared and are used as pasture.

Cropland
Suitability: Not suited
Management concerns:
- Because of the very steep slopes, the droughtiness, and the low natural fertility, these soils are not suited to cultivated crops.

Pasture and Hayland
Suitability: Not suited

Management concerns:
- Because of the very steep slopes and the very severe hazard of erosion, these soils are not suited to hay and pasture.

Woodland

Potential productivity: Moderate on south aspects; moderate or moderately high on north aspects

Management concerns:
- Erosion is a severe hazard on logging roads and skid trails.
- Operating logging equipment is hazardous because of the steep and very steep slopes.
- The limited depth to bedrock, the low natural fertility, and the droughtiness of these soils may cause a moderate seedling mortality rate, especially on south aspects.

Management measures:
- Because of the slope, special care is needed in laying out logging roads and log landings and in operating logging equipment.
- Logging roads should be designed so that they conform to the topography.
- Logging roads should be designed so that their grade is less than 15 percent whenever possible.
- Because of the hazard of erosion, water should be removed from logging roads by water bars, outsloping or insloping road surfaces, culverts, and drop structures.
- Seeding logging roads, skid trails, and log landings to perennial grasses and legumes after the trees are logged helps to prevent excessive erosion.
- Planting nursery stock that is larger than is typical or planting containerized seedlings reduces the seedling mortality rate.
- Tree planting should be timed so that seedlings can take full advantage of spring rains.

Community Development

Suitability: Not suited

Management concerns:
- The steep and very steep slopes and the limited depth to bedrock are severe limitations affecting community development.

Interpretive Groups

Land capability classification: 7e
Prime farmland: No
Hydric soil: No

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of gravel, sand, reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, and the system of land capability classification used by the Natural Resources Conservation Service is explained.

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.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification 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 high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

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 the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

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

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

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

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

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The acreage of soils in each capability class or subclass is shown in table 6. 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, pastureland, forestland, or other 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 when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 6,600 acres in the survey area, or nearly 4.5 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, but most are on the flood plains and stream terraces of the Potomac River, the Cacapon River, and Sleepy Creek, mainly in map unit 5, Monongahela-Philo-Combs-Holly, which is described under the heading "General Soil Map Units."

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 7. 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. The 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."

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Tables 8a and 8b show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Frozen soils are not suitable for disposal of wastewater by irrigation.

Overland flow of wastewater is a process in which wastewater is applied to the upper reaches of sloped land and allowed to flow across vegetated surfaces, sometimes called terraces, to runoff-collection ditches. The length of the run generally is 150 to 300 feet. The application rate ranges from 2.5 to 16.0 inches per week. It commonly exceeds the rate needed for irrigation of cropland. The wastewater leaves solids and nutrients on the vegetated surfaces as it flows downslope in a thin film. Most of the water reaches the collection ditch, some is lost through evapotranspiration, and a small amount may percolate to the ground water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, and the design and construction of the system. Reaction and the cation-exchange capacity affect absorption. Reaction, salinity, and the sodium adsorption ratio affect plant growth and microbial activity. Slope, permeability, depth to a water table, ponding, flooding, depth to bedrock or a cemented pan, stones, and cobbles affect design and construction. Frozen soils are unsuitable for waste treatment.

Rapid infiltration of wastewater is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil. The wastewater may eventually reach the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. Depth to a water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance. Frozen soils are unsuitable for waste treatment.

Slow rate treatment of wastewater is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water may percolate to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Frozen soils are unsuitable for waste treatment.

Forest Productivity and Management

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Forest Productivity

In table 9, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the “National Forestry Manual,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In tables 10a through 10c, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified 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 management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified 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 0.01 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 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," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding (fig. 14). 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 *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 *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.

Figure 14.—A logging haul road cut into an area of Sideling gravelly loam, 15 to 35 percent slopes, rubbly. Stones and boulders on the surface can hinder timber harvesting operations and damage equipment.

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 columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Recreation

The soils of the survey area are rated in tables 11a and 11b 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. *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 tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables 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 these tables 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 cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic (fig. 15). Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Figure 15.—A golf course in an area of Murrill, Clarksburg, and Brinkerton soils.

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 appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 12, 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, orchardgrass, 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.

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, 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, muskrat, mink, and beaver.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others 1979; U.S. Army Corps of Engineers 1987; National Research Council 1995; Tiner 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff 1998) and in the “Soil Survey Manual” (Soil Survey Division Staff 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt, Whited, and Pringle 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council 1995; Hurt, Whited, and Pringle 1998).

AnB	Andover gravelly loam, 3 to 8 percent slopes
BrB	Brinkerton silt loam, 3 to 8 percent slopes
Dz	Dunning silty clay loam
Ho	Holly silt loam
Me	Melvin silt loam

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

Ba	Basher fine sandy loam
BuB	Buchanan gravelly loam, 3 to 8 percent slopes
BuC	Buchanan gravelly loam, 8 to 15 percent slopes
BxC	Buchanan loam, 3 to 15 percent slopes, extremely stony
CrB	Clarksburg gravelly silt loam, 3 to 8 percent slopes
CrC	Clarksburg gravelly silt loam, 8 to 15 percent slopes
CvB	Clearbrook-Cavode silt loams, 0 to 8 percent slopes
Cz	Combs fine sandy loam
ErB	Ernest silt loam, 3 to 8 percent slopes
ErC	Ernest silt loam, 8 to 15 percent slopes
HwB	Hustontown silt loam, 3 to 8 percent slopes
Ln	Lindside silt loam
Pg	Philo gravelly loam
Ph	Philo silt loam
Ps	Pope fine sandy loam
Px	Pope silt loam
Pz	Pope-Philo fine sandy loams
SxC	Sideling gravelly loam, 3 to 15 percent slopes, extremely stony
SxE	Sideling gravelly loam, 15 to 35 percent slopes, extremely stony
SyE	Sideling gravelly loam, 15 to 35 percent slopes, rubbly
TyA	Tygart silt loam, 0 to 3 percent slopes

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation 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.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 13a and 13b described in this section 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 tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, rock fragments on the surface, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 14a and 14b show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Tables 15a and 15b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil (fig. 16). Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or

Figure 16.—Areas of Berks and Weikert soils are underlain by bedrock that is often soft enough to be excavated with conventional earthmoving equipment. The soil material can be excavated and used as roadfill.

gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 15b, the soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. 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 reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 16 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 17 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.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO 1998).

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.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 18 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.

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 the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 19 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliquivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliquivalents 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.

Soil Features

Table 20 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, a fragipan, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect 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.

Water Features

Table 21 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams or by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff 1998, 1999). 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 22 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 class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, 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” (Soil Survey Division Staff 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff 1998). 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.

Allegheny Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Gently sloping to moderately steep stream terraces
Flooding: None
Parent material: Alluvial material washed from acid soils on uplands
Slope range: 3 to 15 percent
Classification: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Representative Pedon

Allegheny loam, 2 miles east of Williamson in Antrim Township, Franklin County, Pennsylvania; 3,800 feet west of the intersection of Pennsylvania Route 3013 and Pennsylvania Township Route T433 and 150 feet north of T433; USGS Williamson topographic quadrangle; lat. 39 degrees 50 minutes 48 seconds N. and long. 77 degrees 46 minutes 11 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) loam; weak very fine granular structure; very friable, nonsticky and nonplastic; 5 percent rounded sandstone pebbles; slightly acid; abrupt smooth boundary.

Bt1—8 to 25 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few faint clay films on faces of peds; 5 percent rounded sandstone pebbles; strongly acid; clear wavy boundary.

Bt2—25 to 34 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable, slightly sticky and slightly plastic; few faint clay films on faces of peds; 10 percent rounded sandstone pebbles; very strongly acid; gradual wavy boundary.

BC—34 to 42 inches; strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; firm, nonsticky and nonplastic; 10 percent rounded sandstone pebbles; very strongly acid; gradual wavy boundary.

C—42 to 65 inches; strong brown (7.5 YR 5/6) gravelly loam; massive; firm, nonsticky and nonplastic; 15 percent rounded sandstone pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, strongly acid to extremely acid

Ap horizon:
Hue—10YR or 7.5YR
Value—3 to 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 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam, sandy clay loam, loam, silt loam, or silty clay loam
Content of rock fragments—5 to 30 percent
Other features—mottles in shades of red and strong brown in some pedons

BC horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—fine sandy loam, loam, sandy clay loam, or clay loam
Content of rock fragments—10 to 30 percent
Other features—mottles in shades of red and strong brown in some pedons

C horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—2 to 8
Texture of the fine-earth fraction—fine sandy loam, loam, sandy clay loam, or clay loam
Content of rock fragments—10 to 30 percent
Other features—mottles in shades of red and strong brown in some pedons

Andover Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Landscape position: Gently sloping, concave toeslopes
Flooding: None
Parent material: Loamy colluvium derived from acid sandstone and shale
Slope range: 3 to 8 percent
Classification: Fine-loamy, mixed, active, mesic Typic Fragiaquults

Representative Pedon

Andover gravelly loam, about 2.75 miles northeast of Amberson in Fannett Township, Franklin County, Pennsylvania; 1.2 miles northeast of the intersection of Pennsylvania Township Route T591 and Pennsylvania Route 4005, about 700 feet south of Route 4005; USGS Doylesburg topographic quadrangle; lat. 40 degrees 11 minutes 48 seconds N. and long. 77 degrees 38 minutes 34 seconds W.

Ap—0 to 8 inches; dark grayish brown (2.5Y 4/2) gravelly loam; weak fine platy structure; friable, slightly sticky and slightly plastic; many fine, medium, and coarse roots throughout; few fine distinct light gray to gray (10YR 6/1) iron depletions and few fine prominent yellowish brown (10YR 5/8) iron concentrations; 15 percent subangular sandstone pebbles; very strongly acid; abrupt smooth boundary.

Btg1—8 to 14 inches; gray (10YR 5/1) gravelly loam; weak fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; common very fine, fine, and medium roots throughout; common faint clay films on faces of peds and in pores; common medium distinct light gray to gray (10YR 6/1) and very dark grayish brown (10YR 3/2) iron depletions and few fine prominent yellowish brown (10YR 5/8) iron concentrations; 15 percent subangular sandstone pebbles; very strongly acid; clear smooth boundary.

Btg2—14 to 19 inches; grayish brown (10YR 5/2) gravelly clay loam; moderate fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; common faint light brownish gray (10YR 6/2) clay films on faces of peds and in pores; many coarse prominent yellowish brown (10YR 5/8) and light yellowish brown (10YR 6/4) iron concentrations; 15 percent subangular sandstone pebbles; very strongly acid; clear wavy boundary.

Btgx—19 to 46 inches; grayish brown (10YR 5/2) gravelly clay loam; moderate very coarse prismatic structure parting to weak medium platy; very firm, brittle, slightly sticky and slightly plastic; few faint light brownish gray (10YR 6/2) clay films on faces of peds; few prominent black (N 2/0) concretions; many coarse prominent strong brown (7.5YR 5/6) iron concentrations; many coarse prominent gray (10YR 6/1) iron depletions; 20 percent subangular sandstone pebbles; very strongly acid; gradual wavy boundary.

Cg—46 to 65 inches; brown (7.5YR 5/2) gravelly sandy clay loam; weak coarse prismatic structure; firm, slightly sticky and slightly plastic; common medium prominent light gray (N 7/0) iron depletions; common medium prominent dark yellowish brown (10YR 4/4) pore linings; 25 percent subangular sandstone pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 72 inches
Depth to the fragipan: 16 to 28 inches
Reaction: In unlimed areas, very strongly acid or strongly acid

Ap or A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 6
Texture of the fine-earth fraction—loam
Content of rock fragments—15 to 35 percent

Btg horizon:
Hue—10YR
Value—4 to 6
Chroma—1 or 2
Texture of the fine-earth fraction—loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 40 percent
Other features—high-chroma iron concentrations in shades of red or brown

Btgx horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 8
Texture of the fine-earth fraction—sandy clay loam, loam, or clay loam
Content of rock fragments—0 to 40 percent
Other features—high-chroma iron concentrations in shades of red or brown

Cg horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—1 to 4

Texture of the fine-earth fraction—sandy clay loam, sandy loam, clay loam, or loam
Content of rock fragments—10 to 50 percent
Other features—high-chroma iron concentrations in shades of red or brown

Basher Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the solum and moderate or moderately rapid in the substratum
Landscape position: Nearly level flood plains along Middle Fork of Sleepy Creek
Flooding: Occasionally flooded for brief periods
Parent material: Alluviual material washed from upland soils derived from reddish shale and siltstone
Slope range: 0 to 3 percent
Classification: Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts

Representative Pedon

Basher fine sandy loam, 0.8 mile south of Enid, in Wells Township, Fulton County, Pennsylvania; 0.55 mile east of the intersection of Pennsylvania Township Route T441 and Pennsylvania Route 4013; USGS Hustontown topographic quadrangle; lat. 40 degrees 05 minutes 18 seconds N. and long. 78 degrees 06 minutes 53 seconds W.

Ap—0 to 8 inches; reddish brown (5YR 4/3) fine sandy loam; moderate medium granular structure; friable, nonsticky and nonplastic; many very fine and fine roots; moderately acid; clear wavy boundary.
Bw—8 to 14 inches; reddish brown (5YR 4/4) loam; weak fine and medium subangular blocky structure; friable, nonsticky and nonplastic; common very fine and fine roots; strongly acid; gradual wavy boundary.
BC—14 to 22 inches; reddish brown (5YR 5/4) loam; very weak coarse subangular blocky structure; very friable, nonsticky and nonplastic; few very fine and fine roots; strongly acid; gradual wavy boundary.
C1—22 to 34 inches; variegated sandy loam, reddish brown (5YR 5/4) and yellowish red (5YR 5/6); single grain; very friable, nonsticky and nonplastic; common medium distinct reddish gray (5YR 5/2) iron depletions lining channels; strongly acid; gradual wavy boundary.
C2—34 to 46 inches; reddish brown (5YR 5/3) loam; massive; friable, nonsticky and nonplastic; many medium faint reddish gray (5YR 5/2) iron depletions lining channels and common medium prominent yellowish red (5YR 5/6) iron concentrations; strongly acid; clear wavy boundary.
Cg—46 to 65 inches; gray (5YR 5/1) gravelly sandy loam; single grain; very friable, nonsticky and nonplastic; many medium prominent light brown (7.5YR 6/4) iron depletions lining pores and channels and common medium prominent reddish yellow (7.5YR 6/6) iron concentrations; 15 percent pebbles; strongly acid.

Range in Characteristics

Thickness of the solum: 16 to 40 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0) in the solum and very strongly acid to slightly acid (pH 4.5 to 6.5) in the substratum

A horizon:
Hue—5YR to 10YR
Value—3 or 4
Chroma—2 to 4
Texture of the fine-earth fraction—fine sandy loam
Content of rock fragments—0 to 15 percent

Bw horizon:
Hue—2.5YR or 5YR
Value—3 to 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, loam, sandy loam, or fine sandy loam
Content of rock fragments—0 to 15 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray in some pedons

BC horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 or 4
Texture of the fine-earth fraction—loam, silt loam, sandy loam, or fine sandy loam
Content of rock fragments—0 to 20 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray in some pedons

C horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—1 to 4
Texture of the fine-earth fraction—loam to loamy sand
Content of rock fragments—10 to 60 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray in some pedons

Berks Series

Depth class: Moderately deep (fig. 17)
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: Gently sloping to very steep, convex, dissected uplands
Flooding: None
Parent material: Residuum derived from shale, siltstone, and fine grained sandstone
Slope range: 3 to 70 percent
Classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Representative Pedon

Berks channery silt loam, in a pastured area, which was previously used for cultivated crops, in the Greensburg area of Berkeley County, West Virginia; about 1,800 feet north of the intersection of County Routes 45/4 and 5/9, on a bearing of 4 degrees; USGS Martinsburg topographic quadrangle; lat. 39 degrees 28 minutes 17 seconds N. and long. 77 degrees 53 minutes 52 seconds W.

Ap—0 to 7 inches; brown (10YR 4/3) channery silt loam; moderate fine and medium granular structure; friable; many fine and medium roots throughout; 15 percent shale channers; neutral; abrupt smooth boundary.

Figure 17.—A profile of the moderately deep Berks soils. These soils are in scattered areas throughout Morgan County. Highly folded, fractured shale bedrock is at a depth of 24 inches. Depth is marked in inches.

Bw1—7 to 12 inches; yellowish brown (10YR 5/6) channery silt loam; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots throughout; 30 percent shale channers; slightly acid; clear smooth boundary.

Bw2—12 to 21 inches; variegated very channery silt loam, 80 percent yellowish brown (10YR 5/6) and 20 percent strong brown (7.5YR 5/6); weak medium and coarse subangular blocky structure; friable; few very fine and fine roots throughout; 40 percent shale channers; strongly acid; clear wavy boundary.

C—21 to 25 inches; variegated extremely channery silt loam, 75 percent strong brown (7.5YR 5/6) and 25 percent yellowish brown (10YR 5/6); massive; friable; 70 percent shale channers; strongly acid; clear wavy boundary.

R—25 inches; yellowish brown shale bedrock.

Range in Characteristics

Thickness of the solum: 12 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)
Content of rock fragments: 15 to 40 percent in the A horizon, 15 to 60 percent in the B horizon, and 40 to 80 percent in the C horizon

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 to 4
Texture—channery or very channery analogs of silt loam or loam

Bw horizon:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture—channery or very channery analogs of loam, silt loam, or silty clay loam

C horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture—very channery or extremely channery analogs of loam or silt loam

Blackthorn Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid above the 2Bt horizon and moderate or moderately slow in the 2Bt horizon
Landscape position: Very steep backslopes on the western slope of Warm Springs Ridge and the eastern slope of Tonoloway Ridge and Little Mountain
Flooding: None
Parent material: Colluvium derived from acid sandstone over limestone residuum
Slope range: 35 to 65 percent
Classification: Loamy-skeletal, mixed, semiactive, mesic Typic Hapludults

Representative Pedon

Blackthorn very gravelly sandy loam, in a wooded area on an eastern slope of Tonoloway Ridge in Morgan County, West Virginia; 2,675 feet south-southeast of the intersection of State Routes 9 and 9/17, on a bearing of 150 degrees; USGS Great Cacapon topographic quadrangle; lat. 39 degrees 34 minutes 14 seconds N. and long. 78 degrees 19 minutes 58 seconds W.

Oi—0 to 1.5 inches; slightly decomposed organic matter from hardwood leaf litter; fibric material.
Oa—1.5 to 2 inches; highly decomposed organic matter from hardwood leaf litter; sapric material.
A—2 to 4 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam; moderate fine granular structure; very friable; many very fine, fine, medium, and coarse roots; many fine interstitial pores; 50 percent subrounded sandstone pebbles; moderately acid; abrupt wavy boundary.
E—4 to 7 inches; brown (10YR 5/3) very gravelly sandy loam; weak medium granular structure; very friable; many very fine, fine, medium, and coarse roots; many fine

interstitial pores; 45 percent subrounded sandstone pebbles; moderately acid; abrupt wavy boundary.

BE—7 to 18 inches; yellowish brown (10YR 5/4) very gravelly sandy loam; weak medium subangular blocky structure parting to moderate fine granular; very friable; common very fine, fine, medium, and coarse roots; many fine interstitial pores; 50 percent subrounded sandstone pebbles; very strongly acid; gradual wavy boundary.

Bw—18 to 31 inches; yellowish brown (10YR 5/6) very gravelly sandy loam; weak fine and medium subangular blocky structure; friable; common very fine, fine, medium, and coarse roots; many fine interstitial and tubular pores; 40 percent subrounded sandstone pebbles; very strongly acid; clear wavy boundary.

Bt—31 to 47 inches; yellowish brown (10YR 5/6) very gravelly loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine interstitial and tubular pores; faint discontinuous clay films on faces of peds; 35 percent sandstone; very strongly acid; clear wavy boundary.

2Bt—47 to 65 inches; yellowish red (5YR 4/6) silty clay; weak medium subangular blocky structure; firm; common very fine, fine, and medium roots; common fine interstitial and tubular pores; faint discontinuous clay films on faces of peds and in pores; 5 percent subrounded sandstone pebbles; strongly acid.

Range in Characteristics

Thickness of the solum: 60 inches or more
Depth to bedrock: More than 60 inches
Reaction: Very strongly acid to moderately acid above the 2Bt horizon and very strongly acid or strongly acid in the 2Bt horizon

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—sandy loam
Content of rock fragments—35 to 60 percent

E horizon:
Hue—10YR
Value—5 or 6
Chroma—2 to 4
Texture of the fine-earth fraction—sandy loam
Content of rock fragments—15 to 60 percent

BE horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—15 to 60 percent

Bw and Bt horizons:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—15 to 60 percent

2Bt horizon:
Hue—2.5YR to 7.5YR

Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay, silty clay loam, or clay
Content of rock fragments—0 to 25 percent

Brinkerton Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Landscape position: Nearly level or gently sloping, concave footslopes and toeslopes
Flooding: None
Parent material: Colluvium derived from acid sandstone and shale
Slope range: 3 to 8 percent
Classification: Fine-silty, mixed, superactive, mesic Typic Fragiaqualfs

Representative Pedon

Brinkerton silt loam, in a pastured area along State Route 8, also known as “River Road,” in Hampshire County, West Virginia; about 0.3 mile south of the State Route 8 junction with U.S. Highway 50.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable; many roots; 10 percent rock fragments; slightly acid; clear wavy boundary.

E—2 to 7 inches; grayish brown (10YR 5/2) silt loam; common medium faint light brownish gray iron depletions; common medium distinct yellowish brown (10YR 5/8) iron concentrations; weak medium platy structure; firm; many roots; 10 percent rock fragments; moderately acid; clear smooth boundary.

Btg—7 to 21 inches; light brownish gray (10YR 6/2) silty clay loam; many distinct strong brown (7.5YR 5/6) iron concentrations; weak medium subangular blocky structure; firm and slightly sticky; few roots; common continuous gray (10YR 5/1) clay films on faces of peds; 5 percent rock fragments; strongly acid; clear smooth boundary.

Btxg1—21 to 31 inches; light brownish gray (2.5Y 6/2) and gray (5Y 5/1) silty clay loam; many prominent strong brown (7.5YR 5/6) iron concentrations; moderate very coarse prismatic structure parting to weak medium platy; very firm, slightly sticky and brittle; common continuous clay films on faces of prisms; 5 percent rock fragments; very strongly acid; clear smooth boundary.

Btxg2—31 to 45 inches; mixed gray (2.5Y 5/1) and light brownish gray (10YR 6/2) channery silty clay loam; many prominent strong brown (7.5YR 5/6) iron concentrations; weak very coarse prismatic structure; very firm and brittle; common continuous light brownish gray clay films on faces of prisms; 20 percent rock fragments; strongly acid; clear smooth boundary.

C—45 to 60 inches; mixed brown (10YR 5/3) extremely channery loam; many faint gray (10YR 5/1) and grayish brown (10YR 5/2) iron depletions; massive; firm; 75 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 50 inches
Depth to bedrock: More than 60 inches
Depth to the fragipan: 15 to 30 inches
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) in the solum and very strongly acid to moderately acid (pH 4.5 to 6.0) in the C horizon
Content of rock fragments: 0 to 10 percent in the A or Ap, E, and Btg horizons, 5 to 20 percent in the Btxg horizon, and 30 to 80 percent in the C horizon

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—silt loam

E horizon:
Hue—10YR
Value—5 or 6
Chroma—1 or 2
Texture—silt loam
Other features—high-chroma iron concentrations in shades of red or brown

Btg horizon:
Hue—10YR to 5Y
Value—5 or 6
Chroma—1 or 2
Texture—silt loam or silty clay loam
Other features—high-chroma iron concentrations in shades of red or brown

Btxg horizon:
Hue—10YR to 5Y
Value—5 or 6
Chroma—1 or 2
Texture—silt loam, silty clay loam, or clay loam
Other features—high-chroma iron concentrations in shades of red or brown

C horizon:
Hue—10YR or 2.5Y or is neutral
Value—4 to 6
Chroma—0 to 4
Texture of the fine-earth fraction—loam, silt loam, or silty clay loam
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray in some pedons

Buchanan Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Landscape position: Gently sloping to steep, concave mountain footslopes, benches, and lower backslopes
Flooding: None
Parent material: Colluvium derived from acid sandstone, siltstone, and shale
Slope range: 3 to 35 percent
Classification: Fine-loamy, mixed, semiactive, mesic Aquic Fragiudults

Representative Pedon

Buchanan loam, in a wooded area on Third Hill Mountain in Berkeley County, West Virginia; about 10,000 feet north-northeast of the intersection of County Routes 7/13 and 826, on a bearing of 18 degrees; USGS Glengary topographic quadrangle; lat. 39 degrees 29 minutes 02 seconds N. and long. 78 degrees 09 minutes 40 seconds W.

Oi—0 to 3 inches; slightly decomposed organic matter from hardwood leaf litter; fibric material.

Oe—3 to 4 inches; organic matter of intermediate decomposition from hardwood leaf litter; hemic material.
A—4 to 5 inches; very dark gray (10YR 3/1) loam; weak fine and medium granular structure; very friable, nonsticky and nonplastic; common very fine, fine, medium, and coarse roots throughout; 5 percent pebbles; very strongly acid; clear wavy boundary.
E—5 to 7 inches; light yellowish brown (10YR 6/4) loam; weak fine subangular blocky structure; friable, nonsticky and nonplastic; common fine, medium, and coarse roots; 5 percent pebbles; very strongly acid; clear wavy boundary.
BE—7 to 16 inches; brownish yellow (10YR 6/6) gravelly loam; weak medium subangular blocky structure; friable, nonsticky and slightly plastic; common fine and medium roots; 15 percent pebbles; very strongly acid; clear wavy boundary.
Bt1—16 to 24 inches; light yellowish brown (10YR 6/4) gravelly loam; moderate fine and medium subangular blocky structure; friable, nonsticky and slightly plastic; few fine and medium roots throughout; few faint clay films on faces of peds and in pores; common medium faint strong brown (7.5YR 5/8) iron concentrations; 20 percent pebbles; very strongly acid; clear wavy boundary.
Bt2—24 to 33 inches; strong brown (7.5YR 5/6) gravelly loam; moderate fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine and medium roots throughout; few clay films on faces of peds and in pores; many coarse distinct pale brown (10YR 6/3) and few fine prominent light brownish gray (10YR 6/2) iron depletions; few medium prominent yellowish red (5YR 4/6) iron concentrations; 10 percent stones; 10 percent pebbles; strongly acid; clear wavy boundary.
Btx1—33 to 52 inches; strong brown (7.5YR 5/6) gravelly loam; weak coarse prismatic structure parting to moderate fine subangular blocky; firm and brittle, slightly sticky and slightly plastic; few fine or medium roots between peds; few faint clay films on faces of peds and in pores; many coarse prominent light brownish gray (10YR 6/2) iron depletions; few medium distinct dark red (2.5YR 3/6) and few fine distinct brownish yellow (10YR 6/8) iron concentrations; 30 percent pebbles; strongly acid; clear wavy boundary.
Btx2—52 to 65 inches; reddish brown (5YR 4/4) very gravelly loam; weak coarse prismatic structure parting to weak fine and medium subangular blocky; very firm and brittle, nonsticky and slightly plastic; few faint clay films on faces of peds and in pores; common coarse prominent gray (10YR 6/1) iron depletions; few medium distinct red (2.5 YR 4/6) iron concentrations; 35 percent pebbles; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to bedrock: More than 60 inches
Depth to the fragipan: 20 to 36 inches
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)

A horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—1 to 3
Texture—loam
Content of rock fragments—0 to 30 percent

E horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—loam, sandy loam, or fine sandy loam
Content of rock fragments—0 to 40 percent

BE horizon (if it occurs):
Hue—10YR
Value—5 or 6
Chroma—5 or 6
Texture of the fine-earth fraction—loam
Content of rock fragments—0 to 40 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 40 percent
Other features—low-chroma iron depletions in shades of gray and high-chroma iron concentrations in shades of red and brown in the top 10 inches of this horizon

Btx horizon:
Hue—10YR to 5YR
Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—loam, clay loam, or sandy clay loam
Content of rock fragments—5 to 60 percent
Other features—low-chroma iron depletions in shades of gray and high-chroma iron concentrations in shades of red and brown

C horizon (if it occurs):
Hue—10YR to 5YR
Value—4 to 6
Chroma—1 to 6
Texture of the fine-earth fraction—loam, sandy loam, clay loam, or sandy clay loam
Content of rock fragments—5 to 60 percent
Other features—low-chroma iron depletions in shades of gray and high-chroma iron concentrations in shades of red and brown in some pedons

Calvin Series

Depth class: Moderately deep
Drainage class: Well drained (fig. 18)
Permeability: Moderately rapid
Landscape position: Gently sloping to very steep, upland ridgetops, shoulder slopes, and backslopes
Flooding: None
Parent material: Residuum derived from reddish shale or fine grained sandstone; mostly members of the Hampshire geologic formation
Slope range: 3 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Representative Pedon

Calvin channery loam, in a wooded area southwest of the community of Sleepy Creek in Morgan County, West Virginia; about 6,800 feet southeast of the intersection of State Routes 8 and 8/6, on a bearing of 145 degrees; USGS Cherry Run topographic quadrangle; lat. 39 degrees 37 minutes 30 seconds N. and long. 78 degrees 06 minutes 29 seconds W.

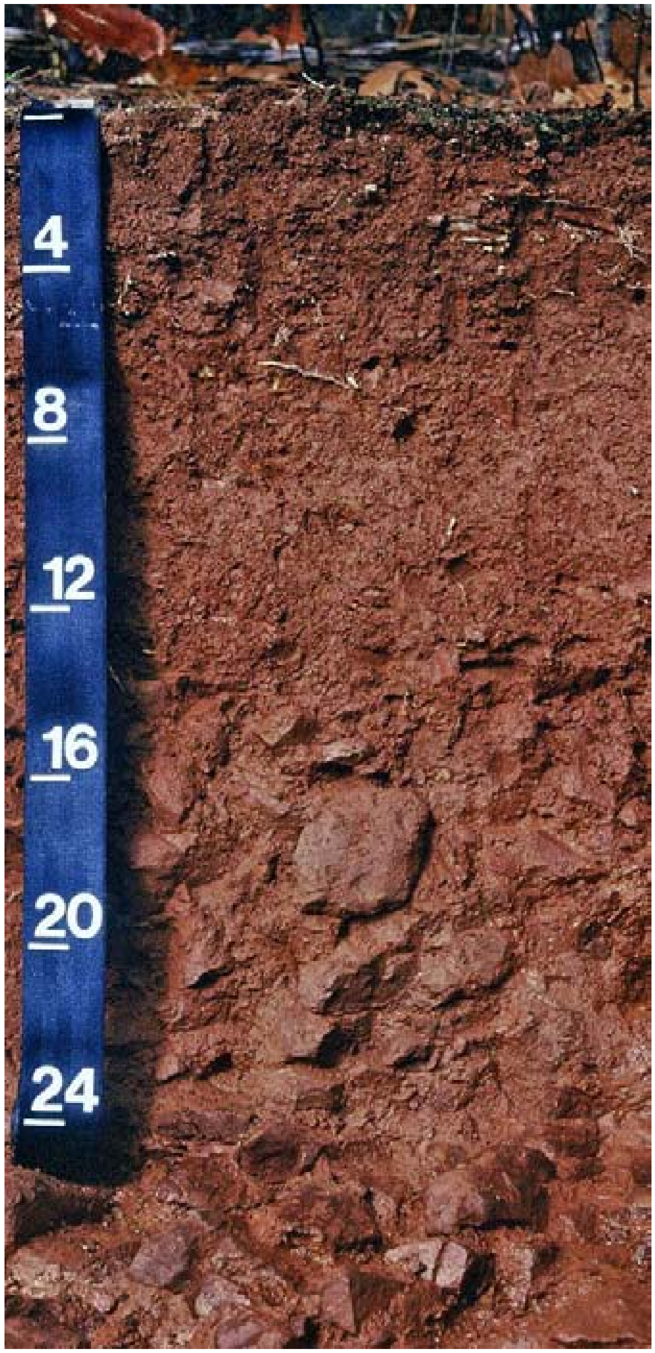

Figure 18.—A profile of the well drained Calvin soils. Iron oxides give the soils their redness. Fractured, fine grained sandstone is at a depth of 24 inches. Depth is marked in inches.

A—0 to 3 inches; dark reddish brown (5YR 3/2) channery loam; moderate very fine and fine granular structure; very friable; many very fine, fine, and medium roots; 20 percent dark reddish brown (5YR 3/3) angular fine grained sandstone channers; very strongly acid; abrupt wavy boundary.

BA—3 to 5 inches; reddish brown (5YR 4/3) channery loam; weak very fine subangular blocky structure parting to moderate fine granular; very friable; many very fine, fine, and medium roots; 25 percent dark reddish brown (5YR 3/3) angular fine grained sandstone channers; very strongly acid; abrupt wavy boundary.

Bw—5 to 18 inches; reddish brown (5YR 4/4) very channery loam; weak fine and medium subangular blocky structure; friable; common very fine, fine, medium, and coarse roots; 50 percent dark reddish brown (5YR 3/3) angular fine grained sandstone channers; very strongly acid; clear irregular boundary.

C—18 to 26 inches; reddish brown (5YR 4/4) extremely channery loam; massive; friable; few very fine, fine, and medium roots; 75 percent dark reddish brown (5YR 3/3) angular fine grained sandstone channers; very strongly acid; clear irregular boundary.

R—26 inches; dark reddish brown (5YR 3/3), moderately weathered, fractured and tilted, fine grained sandstone bedrock.

Range in Characteristics

Thickness of the solum: 12 to 35 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, very strongly acid to moderately acid (pH 4.5 to 6.0) throughout the profile
Content of rock fragments: 15 to 25 percent in the A horizon, 25 to 55 percent in the B horizon, and 40 to 80 percent in the C horizon

A horizon:
Hue—5YR or 7.5YR
Value—2 to 5
Chroma—2 to 4
Texture—channery loam

B horizon:
Hue—5YR or 2.5YR
Value—4 or 5
Chroma—3 to 6
Texture—channery or very channery analogs of loam or silt loam

C horizon:
Hue—5YR or 2.5YR
Value—4 or 5
Chroma—2 to 4
Texture—very channery or extremely channery analogs of loam or silt loam

Caneyville Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Landscape position: Strongly sloping to very steep upland ridges, shoulder slopes, and backslopes
Flooding: None
Parent material: Residuum derived from limestone
Slope range: 8 to 65 percent
Classification: Fine, mixed, active, mesic Typic Hapludalfs

Representative Pedon

Caneyville silt loam, in a wooded area on the eastern slope of Tonoloway Ridge in Morgan County, West Virginia; about 1,700 feet west-southwest of the intersection of State Routes 7 and 9/12, on a bearing of 248 degrees; USGS Great Cacapon topographic quadrangle; lat. 39 degrees 36 minutes 14 seconds N. and long. 78 degrees 18 minutes 03 seconds W.

A1—0 to 2 inches; dark brown (10YR 3/3) silt loam; moderate fine and medium granular structure; friable; many fine, medium, and coarse roots; common fine interstitial and tubular pores; 10 percent subrounded sandstone pebbles; neutral; abrupt wavy boundary.

A2—2 to 4 inches; brown (7.5YR 4/3) silt loam; moderate medium granular structure; friable; many fine and medium roots; common very fine and fine interstitial and tubular pores; 10 percent subrounded sandstone pebbles; slightly acid; clear wavy boundary.

E—4 to 6 inches; brown (7.5YR 5/4) gravelly silt loam; weak fine and medium granular structure; friable; many fine, medium, and coarse roots; common very fine and fine interstitial pores; 10 percent subrounded sandstone pebbles; slightly acid; clear wavy boundary.

BE—6 to 12 inches; strong brown (7.5YR 5/4) gravelly silt loam; weak medium subangular blocky structure; friable; common very fine and fine roots; common fine and medium tubular and common very fine and fine interstitial pores; 25 percent subrounded sandstone pebbles; slightly acid; clear smooth boundary.

Bt1—12 to 19 inches; yellowish red (5YR 4/6) silty clay; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common very fine, fine, and medium roots; common medium and coarse tubular pores and common very fine and fine interstitial pores; very few faint discontinuous clay films on faces of peds and in pores; 5 percent subrounded sandstone pebbles; slightly acid; clear wavy boundary.

Bt2—19 to 24 inches; yellowish red (5YR 4/6) silty clay; weak medium prismatic structure parting to moderate fine subangular blocky; firm; common very fine and fine roots; common medium and coarse tubular pores and common very fine interstitial pores; very few faint discontinuous clay films on faces of peds and in pores; 2 percent subrounded sandstone pebbles; slightly acid; abrupt irregular boundary.

R—24 inches; limestone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, strongly acid to neutral (pH 5.1-7.3) in the upper part of the solum and moderately acid to slightly alkaline (pH 5.6 to 7.8) in the lower part of the solum and in the substratum (if it occurs)

A horizon:
Hue—10YR or 7.5YR
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—silt loam or silty clay loam
Content of rock fragments—0 to 10 percent

E horizon (if it occurs):
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam, loam, or silty clay loam
Content of rock fragments—0 to 10 percent

BE or BA horizon:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam, loam, or silty clay loam
Content of rock fragments—0 to 25 percent

Bt horizon:
Hue—10YR to 5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 10 percent

BC horizon (if it occurs):
Hue—10YR to 5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay, clay, or clay loam
Content of rock fragments—0 to 10 percent

C horizon (if it occurs):
Hue—10YR to 5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silty clay, clay, or clay loam
Content of rock fragments—0 to 35 percent

Cavode Series

Depth class: Deep or very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Landscape position: Nearly level or gently sloping, concave head slopes
Flooding: None
Parent material: Residuum derived from shale
Slope range: 0 to 8 percent
Classification: Fine, mixed, active, mesic Aeric Endoaquults

Representative Pedon

Cavode silt loam, in a grassed area of Morgan County Industrial Park, in the Ridge area of Morgan County, West Virginia; about 600 feet southeast of the industrial park entrance on U.S. Route 522, on a bearing of 133 degrees; USGS Ridge topographic quadrangle; lat. 39 degrees 28 minutes 22 seconds N. and long. 78 degrees 18 minutes 15 seconds W.

A—0 to 2 inches; olive brown (2.5Y 4/4) silt loam; moderate very fine and fine granular structure; very friable; many fine and very fine roots; slightly acid; clear smooth boundary.

Ap—2 to 8 inches; olive brown (2.5Y 4/4) silt loam; weak medium subangular blocky structure parting to moderate fine granular; friable; many fine and very fine roots; slightly acid; abrupt smooth boundary.

BE—8 to 12 inches; light olive brown (2.5Y 5/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common fine roots; few fine yellowish brown (10YR 5/8) iron concentrations; few fine grayish brown (2.5Y 5/2) iron depletions; slightly acid; clear smooth boundary.

Bt—12 to 23 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, slightly sticky and slightly plastic; common fine roots; few thin discontinuous clay films on ped faces; common medium strong brown (7.5YR 4/6) iron concentrations; common medium light grayish brown (2.5Y 6/2) iron depletions; moderately acid; gradual wavy boundary.

Btg—23 to 41 inches; gray (2.5Y 6/1) silty clay; moderate medium prismatic structure parting to moderate medium angular blocky; firm, slightly sticky and slightly plastic; few very fine roots; few thin discontinuous clay films on faces of peds; many medium yellowish brown (10YR 5/6) and common medium red (2.5YR 4/6) iron concentrations; 2 percent sandstone and shale channers; strongly acid; clear wavy boundary.

BCg—41 to 51 inches; gray (2.5Y 6/1) silty clay loam; weak medium prismatic structure parting to weak medium angular blocky; friable, slightly sticky and slightly plastic; few very fine roots; common medium yellowish brown (10YR 5/6) and few medium red (2.5YR 4/6) iron concentrations; 2 percent shale and sandstone channers; strongly acid; gradual wavy boundary.

Cg—51 to 62 inches; gray (2.5Y 6/1) very channery silty clay loam; weak thin platy structure inherited from the parent rock; friable, slightly sticky and slightly plastic; many coarse red (2.5YR 4/6) iron concentrations; strongly acid; 50 percent shale channers; abrupt wavy boundary.

Cr—62 inches; stratified, dark brown and reddish brown, rippable, weathered shale bedrock.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: 40 to 72 inches
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Content of rock fragments: 0 to 15 percent in the A and B horizons and 0 to 60 percent in the C horizon

Ap or A horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam

BE horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Bt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silty clay
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Btg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 or 2
Texture—silty clay loam, silty clay, or clay
Other features—high-chroma iron concentrations in shades of red or brown

BCg horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam, silty clay loam, silty clay, or clay

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam, silty clay loam, silty clay, or clay
Other features—high-chroma iron concentrations in shades of red or brown or low-chroma iron depletions in shades of gray

Clarksburg Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Landscape position: Gently sloping or strongly sloping, concave footslopes
Flooding: None
Parent material: Mixed colluvium derived from sandstone, limestone, and calcareous shale
Slope range: 3 to 15 percent
Classification: Fine-loamy, mixed, superactive, mesic Oxyaquic Fragiudalfs

Representative Pedon

Clarksburg gravelly silt loam, in a meadow in Hampshire County, West Virginia; 20 feet south of U.S. Highway 50 and 50 feet above the entrance into the Whipp Brother farm.

Ap—0 to 8 inches; dark brown (10YR 3/3) gravelly silt loam; weak fine granular structure; very friable; many roots; 20 percent rock fragments; moderately acid; clear smooth boundary.
BE—8 to 12 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak fine and medium granular structure; friable; many roots; 15 percent rock fragments; moderately acid; clear smooth boundary.
Bt1—12 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; many roots; few discontinuous clay films on faces of peds; 10 percent rock fragments; strongly acid; clear wavy boundary.
Bt2—22 to 29 inches; yellowish brown (10YR 5/6) silty clay loam; common faint grayish brown iron depletions; moderate fine and medium subangular blocky structure; firm; continuous light brownish gray (10YR 6/2) clay films on faces of peds; 10 percent rock fragments; strongly acid; clear smooth boundary.
Btx1—29 to 42 inches; brown (10YR 5/3) clay loam; many medium faint brownish gray (10YR 6/2) iron depletions; many medium distinct yellowish brown

(10YR 5/6) iron concentrations; moderate very coarse prismatic structure parting to weak medium subangular blocky; very firm and brittle; few clay films on faces of prisms; 5 percent rock fragments; moderately acid; clear smooth boundary.

Btx2—42 to 60 inches; brown (10YR 5/3) gravelly clay loam; many medium faint light brownish gray (10YR 6/2) iron depletions; many medium distinct yellowish brown (10YR 5/8) iron concentrations; weak very coarse prismatic structure; very firm and brittle; common discontinuous clay films on faces of prisms; reddish and blackish brown concretions in discontinuous wavy bands and pockets; 15 percent rock fragments; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to bedrock: More than 60 inches
Depth to the fragipan: 20 to 36 inches
Reaction: In unlimed areas, strongly acid to slightly acid throughout

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 25 percent

BE horizon:
Hue—10YR
Value—4 to 6
Chroma—4
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—5 to 25 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam, loam, clay loam, or silty clay loam
Content of rock fragments—0 to 25 percent
Other features—low-chroma iron depletions in shades of gray and high-chroma iron concentrations in shades of red and brown in the lower part of the horizon

Btx horizon:
Hue—10YR to 5YR
Value—5 or 6
Chroma—3 to 6
Texture of the fine-earth fraction—silty clay loam or clay loam
Content of rock fragments—5 to 30 percent
Other features—low-chroma iron depletions in shades of gray and high-chroma iron concentrations in shades of red and brown

C 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, silty clay loam, clay loam, or clay
Content of rock fragments—5 to 80 percent
Other features—low-chroma iron depletions in shades of gray and high-chroma iron concentrations in shades of red and brown

Clearbrook Series

Depth class: Moderately deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Landscape position: Nearly level to strongly sloping, concave head slopes, upland depressions, and linear uplands
Flooding: None
Parent material: Residuum derived from shale
Slope range: 0 to 15 percent
Classification: Loamy-skeletal, mixed, active, mesic Aeric Epiaquults

Representative Pedon

Clearbrook silt loam, in a grassed area of Morgan County Industrial Park, in the Ridge area of Morgan County, West Virginia; about 160 feet south-southeast of the industrial park entrance from U.S. Route 522, on a bearing of 161 degrees; USGS Ridge topographic quadrangle; lat. 39 degrees 28 minutes 24 seconds N. and long. 78 degrees 18 minutes 19 seconds W.

Ap—0 to 8 inches; olive brown (2.5Y 4/3) silt loam; weak fine granular structure; friable, slightly sticky and nonplastic; common fine and very fine roots; 10 percent thin shale fragments; slightly acid; abrupt smooth boundary.
Bt—8 to 13 inches; light olive brown (2.5Y 5/4) channery silty clay loam; weak very fine and fine subangular blocky structure; friable, slightly sticky and slightly plastic; few very fine roots; few thin discontinuous clay films on faces of peds and shale fragments; few fine strong brown (7.5YR 5/6) iron concentrations; few common medium light grayish brown (2.5Y 6/2) iron depletions; 25 percent thin shale fragments; strongly acid; abrupt wavy boundary.
Btg—13 to 19 inches; light grayish brown (2.5Y 6/2) very channery silty clay loam; moderate fine subangular blocky structure; friable, slightly sticky and slightly plastic; few very fine roots; few thin discontinuous clay films on faces of peds and on shale fragments; common fine and medium strong brown (7.5YR 5/6) and few medium yellowish brown (10YR 5/4) iron concentrations; 45 percent thin shale fragments; very strongly acid; abrupt wavy boundary.
Cg—19 to 22 inches; light brownish gray (2.5Y 6/2) and gray (2.5Y 6/1) extremely channery silty clay; massive; firm, slightly sticky and slightly plastic; few very fine roots; few thin discontinuous clay films on shale fragments; common fine and medium strong brown (7.5YR 5/6) iron concentrations; 85 percent thin shale fragments; very strongly acid; abrupt wavy boundary.
Cr—22 inches; stratified, dark brown and reddish brown, rippable shale bedrock.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, very strongly acid or strongly acid throughout (pH 4.5 to 5.5)
Content of rock fragments: 10 to 35 percent shale or siltstone fragments in the A horizon, 20 to 70 percent in the B horizon, and 50 to 90 percent in the C horizon

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—silt loam or channery silt loam

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam, silty clay loam, silty clay, or the channery or very channery analogs of those textures
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

C horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam, silty clay loam, silty clay, or the very channery or extremely channery analogs of those textures
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Combs Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: On flood plains along the Potomac River
Flooding: Occasional (a 5 to 50 percent chance of flooding in any year)
Parent material: Alluvium washed from soils formed on uplands
Slope range: 0 to 3 percent
Classification: Coarse-loamy, mixed, active, mesic Fluventic Hapludolls

Representative Pedon

Combs fine sandy loam, in a hayfield along the Potomac River, in the Whitings Neck area of Berkeley County, West Virginia; about 9,200 feet north-northeast of the intersection of County Routes 12/5 and 5/4, on a bearing of 22 degrees; USGS Williamsport topographic quadrangle; lat. 39 degrees 31 minutes 54 seconds N. and long. 77 degrees 50 minutes 13 seconds W.

Ap—0 to 10 inches; dark brown (10YR 3/3) fine sandy loam, brown (10YR 5/3) dry; weak fine and medium granular structure; very friable; common very fine and fine roots throughout; mildly alkaline; abrupt smooth boundary.
AB—10 to 20 inches; dark brown (7.5YR 3/2) fine sandy loam, brown (10YR 5/3) dry; weak medium and coarse subangular blocky structure; friable; few fine, medium, and coarse roots throughout; many very dark brown (10YR 2/2) organic coats on faces of peds and in pores; neutral; gradual wavy boundary.
Bw—20 to 53 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine, medium, and coarse roots throughout; many dark brown (10YR 2/2) organic coats on faces of peds and in pores; common krotovinas; neutral; clear wavy boundary.
C—53 to 65 inches; dark brown to brown (10YR 4/3) fine sandy loam; massive; friable; neutral.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, moderately acid to neutral (pH 5.6 to 7.3)

A, Ap, or AB horizon:
Hue—10YR
Value—3 (moist)
Chroma—2 or 3 (moist)
Texture of the fine-earth fraction—fine sandy loam
Content of rock fragments—0 to 15 percent

Bw horizon:
Hue—10YR
Value—4
Chroma—4
Texture of the fine-earth fraction—fine sandy loam, very fine sandy loam, sandy loam, loam, or silt 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—fine sandy loam, sandy loam, loam, or silt loam
Content of rock fragments—0 to 15 percent
Other features—high-chroma iron concentrations and low-chroma iron depletions in some pedons

Ab horizon (if it occurs):
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture of the fine-earth fraction—fine sandy loam, very fine sandy loam, sandy loam, loam, or silt loam

Dekalb Series

Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Landscape position: Convex, gently sloping to steep ridgetops and steep or very steep shoulder slopes and nose slopes on mountainsides
Flooding: None
Parent material: Residuum derived from acid sandstone; in places interbedded with shale and siltstone
Slope range: 3 to 65 percent
Classification: Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts

Representative Pedon

Dekalb channery sandy loam, in a wooded area of Sleepy Creek Public Hunting and Fishing Area in Berkeley County, West Virginia; about 2,250 feet southwest of Neglar Spring, along County Route 7/13, on a bearing of 227 degrees; USGS Glengary topographic quadrangle; lat. 39 degrees 27 minutes 09 seconds N. and long. 78 degrees 11 minutes 01 second W.

Oa—0 to 1 inch; highly decomposed organic matter from hardwood leaf litter; sapric material.
A—1 to 4 inches; very dark brown (10YR 3/2) channery sandy loam; weak fine granular structure; very friable; many fine, medium, and coarse roots throughout; 30 percent channers; extremely acid; clear smooth boundary.

E—4 to 6 inches; grayish brown (10YR 5/2) very channery loamy sand; weak fine granular structure; very friable; common fine and medium roots throughout; 45 percent channers; extremely acid; clear wavy boundary.
Bw1—6 to 15 inches; yellowish brown (10YR 5/6) very channery sandy loam; weak fine and medium subangular blocky structure; friable; common fine, medium, and coarse roots throughout; 35 percent channers; very strongly acid; abrupt wavy boundary.
Bw2—15 to 24 inches; yellowish brown (10YR 5/4) extremely flaggy sandy loam; weak medium and coarse subangular blocky structure; friable; common fine, medium, and coarse roots throughout; 60 percent flagstones; very strongly acid; abrupt wavy boundary.
R—24 inches; fractured, gray sandstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, extremely acid or very strongly acid (pH 3.5 to 5.0)

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture of the fine-earth fraction—sandy loam
Content of rock fragments—20 to 35 percent

E horizon:
Hue—10YR
Value—5
Chroma—2 to 4
Texture of the fine-earth fraction—loamy sand, sandy loam, or loam
Content of rock fragments—35 to 60 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—sandy loam or loam
Content of rock fragments—35 to 60 percent

C horizon (if it occurs):
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—sandy loam or loamy sand
Content of rock fragments—50 to 90 percent

Downsville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Gently sloping or strongly sloping terraces high above the Potomac River
Flooding: None
Parent material: Alluvial deposits washed from upland soils formed in sandstone, shale, limestone, and chert

Slope range: 3 to 15 percent
Classification: Loamy-skeletal, mixed, active, mesic Typic Paleudults

Representative Pedon

Downsville gravelly loam, in a cultivated field in Washington County, Maryland; about 50 feet north of Falling Waters Road, 2,800 feet south and 5,300 feet east of the Potomac River; USGS Williamsport topographic quadrangle; lat. 39 degrees 33 minutes 21 seconds N. and long. 77 degrees 52 minutes 02 seconds W.

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) gravelly loam; moderate fine and medium subangular blocky structure parting to moderate medium granular; friable; common fine roots; 25 percent pebbles and 3 percent cobbles; neutral; abrupt smooth boundary.

BE—10 to 18 inches; yellowish brown (10YR 5/6) very gravelly loam; moderate fine subangular blocky structure; friable; few very fine roots; many fine and common medium tubular and vesicular pores; 40 percent pebbles and 10 percent cobbles; neutral; clear wavy boundary.

Bt1—18 to 30 inches; strong brown (7.5YR 5/6) very gravelly loam; moderate medium subangular blocky structure; friable; few very fine roots; few fine tubular and vesicular pores; many prominent red (2.5YR 4/6) clay films on faces of peds and on rock fragments; 40 percent pebbles and 5 percent cobbles; strongly acid; clear wavy boundary.

Bt2—30 to 41 inches; yellowish red (5YR 5/6) very gravelly clay loam; moderate fine subangular blocky structure; friable; few fine and very fine roots; common fine tubular and vesicular pores, few medium tubular and vesicular pores; many prominent continuous red (2.5YR 4/6) clay films on faces of peds and on rock fragments; 40 percent pebbles and 10 percent cobbles; very strongly acid; clear wavy boundary.

Bt3—41 to 87 inches; red (2.5YR 4/6) very gravelly sandy clay loam; moderate fine subangular blocky structure; friable; few fine roots; few medium vesicular and few fine tubular pores; many faint dark red (2.5YR 3/6) continuous clay films on faces of peds and on rock fragments; 40 percent pebbles and 10 percent cobbles; very strongly acid; gradual smooth boundary.

Bt4—87 to 99 inches; red (2.5YR 4/6) very gravelly sandy clay loam; moderate fine subangular blocky structure; very friable; few medium vesicular pores and few fine tubular pores; common faint dark red (2.5YR 3/6) continuous clay films on faces of peds and on rock fragments; 35 percent pebbles and 5 percent cobbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 60 to 110 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5)
Content of rock fragments: 15 to 30 percent in the Ap horizon, 25 to 40 percent in the BE horizon, and 25 to 60 percent in the Bt horizon

Ap horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Texture—gravelly loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6

Texture—gravelly or very gravelly analogs of loam, fine sandy loam, or sandy loam

Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture—gravelly or very gravelly analogs of loam, clay loam, sandy clay loam, or sandy clay

Dunning Series

Depth class: Very deep
Drainage class: Poorly drained or very poorly drained
Permeability: Slow
Landscape position: Slightly concave flood plains and stream heads
Flooding: Occasional (a 5 to 50 percent chance of flooding in any year)
Parent material: Alluvium washed mainly from limestone-influenced soils on uplands
Slope range: 0 to 3 percent
Classification: Fine, mixed, active, mesic Fluvaquentic Endoaquolls

Representative Pedon

Dunning silty clay loam, in a meadow in Hampshire County, West Virginia; 330 yards west of State Route 8, about 550 yards east-southeast of the South Branch of the Potomac River, and 1.1 miles east-northeast of Sawmill Run.

Ap—0 to 9 inches; very dark gray (10YR 3/1) silty clay loam; common fine distinct reddish brown (2.5YR 4/4) iron concentrations around roots; moderate and strong, fine and medium subangular blocky structure; firm, slightly sticky and slightly plastic; mildly alkaline; clear smooth boundary.
Ag—9 to 12 inches; very dark grayish brown (10YR 3/2) silty clay loam; common fine distinct reddish brown (2.5YR 4/4) iron concentrations; strong fine and medium angular blocky structure; firm, slightly sticky and slightly plastic; slightly acid; clear smooth boundary.
Bg1—12 to 28 inches; gray (10YR 5/1) clay; common medium distinct reddish brown (2.5YR 4/4) and strong brown (7.5YR 5/6) iron concentrations; weak and moderate, medium and coarse prismatic structure parting to moderate and strong, coarse angular blocky; very firm, sticky and plastic; slightly acid; clear smooth boundary.
Bg2—28 to 46 inches; gray (10YR 6/1) silty clay; common medium distinct reddish brown (2.5YR 4/4) iron concentrations and grayish brown (10YR 5/2) iron depletions; weak coarse prismatic structure parting to weak thick platy; very firm, sticky and plastic; moderately acid; clear smooth boundary.
Cg—46 to 65 inches; mixed gray (N 5/0) silty clay with light yellowish brown (10YR 6/4) and dark gray (N 4/0) stratified gravelly sandy loam, silt loam, and clay loam; massive; friable or firm; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to slightly alkaline throughout

Ap and Ag horizons:
Hue—10YR or 2.5Y

Value—2 or 3
Chroma—1 to 3
Content of rock fragments—0 to 10 percent
Texture of the fine-earth fraction—silty clay loam
Other features—high-chroma iron concentrations in shades of red

Bg horizon:
Hue—10YR to 5Y
Value—5 or 6
Chroma—1
Texture of the fine-earth fraction—clay, silty clay, or silty clay loam
Content of rock fragments—0 to 10 percent
Other features—high-chroma iron concentrations in shades of red

Cg horizon:
Hue—10YR or 2.5Y or is neutral
Value—3 to 5
Chroma—0 to 2
Texture of the fine-earth fraction—silty clay, clay, or silty clay loam; stratified silt loam, loam, clay loam, or sandy loam below a depth of 40 inches in some pedons
Content of rock fragments—0 to 30 percent
Other features—high-chroma iron concentrations in shades of red or brown

Ernest Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and moderately slow or slow in and below the fragipan
Landscape position: Gently sloping or strongly sloping, concave footslopes and toeslopes and convex colluvial fans
Flooding: None
Parent material: Colluvium derived from shale and fine grained sandstone
Slope range: 3 to 15 percent
Classification: Fine-loamy, mixed, superactive, mesic Aquic Fragiudults

Representative Pedon

Ernest silt loam, in Licking Creek Township, Fulton County, Pennsylvania; 2,000 feet northeast of the intersection of Pennsylvania Township Routes T420 and T419, about 1,300 feet east of T419; USGS Hustontown topographic quadrangle; lat. 40 degrees 0 minutes 36 seconds N. and long. 78 degrees 03 minutes 19 seconds W.

Ap—0 to 7 inches; brown (10YR 5/3) silt loam; moderate fine and medium granular structure; very friable, nonsticky and nonplastic; many medium and fine roots; 10 percent subangular shale channers; slightly acid; abrupt smooth boundary.
E—7 to 13 inches; light yellowish brown (10YR 6/4) silt loam; weak fine and medium subangular blocky structure; friable, slightly sticky and nonplastic; common fine roots; 10 percent subangular shale channers; moderately acid; clear wavy boundary.
Bt—13 to 27 inches; brownish yellow (10YR 6/6) channery silty clay loam; moderate medium subangular blocky structure; friable, slightly sticky and plastic; few fine and very fine roots; continuous distinct clay films on faces of peds and in pores; common medium distinct light gray (10YR 7/2) iron depletions on surfaces of peds; 15 percent subangular shale channers; strongly acid; clear wavy boundary.

Btx1—27 to 43 inches; strong brown (7.5YR 5/8) channery silty clay loam; very coarse prismatic structure parting to strong medium angular blocky; firm and brittle, sticky and plastic; continuous distinct clay films on faces of peds; many medium and coarse prominent light gray (10YR 7/2) iron depletions on faces of peds; 15 percent subangular shale channers; strongly acid; clear irregular boundary.

Btx2—43 to 65 inches; brown (7.5YR 5/6) channery silt loam; weak very coarse prismatic structure parting to moderate medium platy; firm and brittle, slightly sticky and nonplastic; continuous distinct clay films on faces of peds; few prominent black (7.5YR 2/0) iron and manganese stains on faces of peds; few coarse prominent light gray (10YR 6/2) iron depletions on faces of peds; common fine distinct reddish yellow (7.5YR 6/8) masses of iron accumulation in ped interiors; 25 percent subangular shale channers; strongly acid.

Range in Characteristics

Thickness of the solum: 36 to 70 inches
Depth to bedrock: More than 60 inches
Depth to the fragipan: 20 to 36 inches
Reaction: In unlimed areas, strongly acid or very strongly acid throughout
Content of rock fragments: 5 to 15 percent in the A horizon, 5 to 25 percent in the E horizon, 5 to 30 percent in the Bt horizon, 5 to 40 percent in the Btx horizon, and 5 to 50 percent in the C horizon

Ap or A horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 8
Texture—silt loam or silty clay loam
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Btx horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 8
Texture—silty clay loam, silt loam, or clay loam
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

C horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 6
Texture—silt loam, clay loam, or silty clay loam

Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Hazleton Series

Depth class: Very deep
Drainage class: Well drained (fig. 19)
Permeability: Moderately rapid or rapid
Landscape position: Steep and very steep, slightly convex to slightly concave backslopes

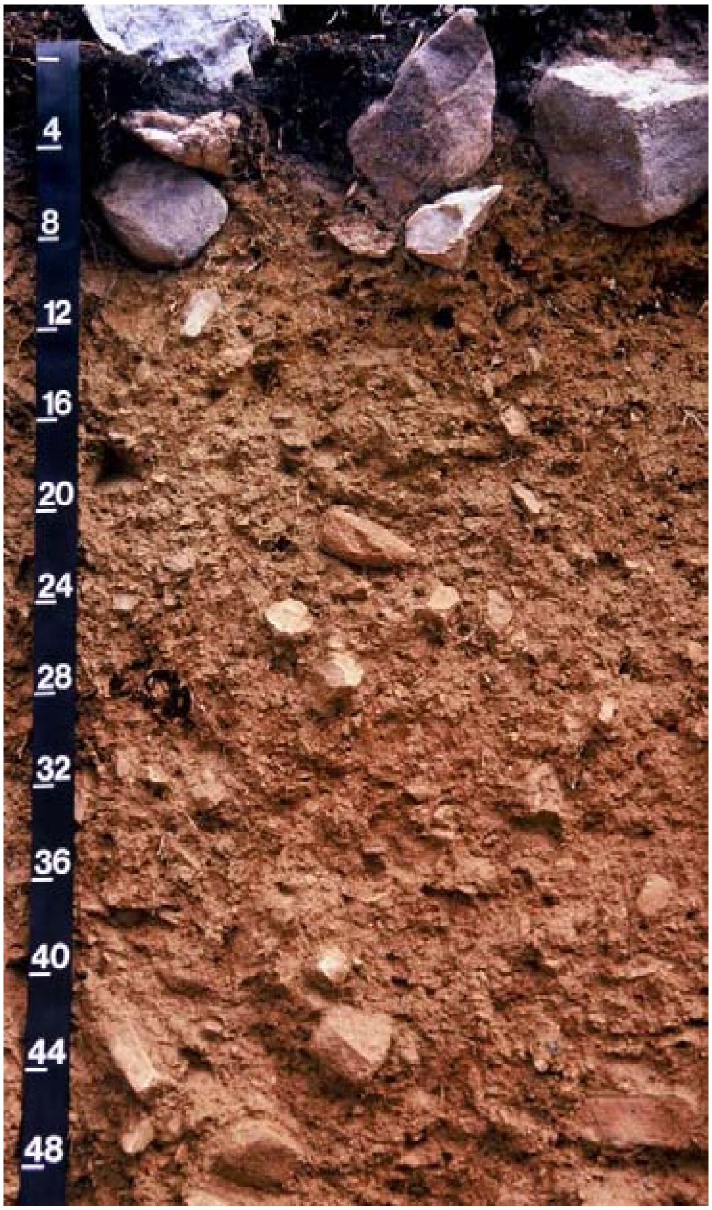

Figure 19.—A profile of the well drained Hazleton soils. These soils are in very steep, rugged landscape positions throughout Morgan County. Depth is marked in inches.

Flooding: None
Parent material: Colluvium derived from acid sandstone
Slope range: 15 to 65 percent
Classification: Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts

Representative Pedon

Hazleton channery loam, in a wooded area in Sleepy Creek Public Hunting and Fishing Area, on Third Hill Mountain in Berkeley County, West Virginia; about 1,200 feet southwest of the intersection of Park and Forest Routes 825 and 826, on a bearing of 231 degrees; USGS Stotlers Crossroads topographic quadrangle; lat. 39 degrees 30 minutes 01 second N. and long. 78 degrees 08 minutes 28 seconds W.

Oi—0 to 1 inch; slightly decomposed organic matter from hardwood leaf litter; fibric material.

Oe—1 to 2 inches; organic matter of intermediate decomposition from hardwood leaf litter; hemic material.

A—2 to 5 inches; very dark brown (10YR 2/2) channery loam; weak fine and medium granular structure; very friable; common fine, medium, and coarse roots throughout; 20 percent channers; very strongly acid; clear smooth boundary.

E—5 to 12 inches; dark yellowish brown (10YR 4/4) channery loam; weak fine and medium subangular blocky structure parting to weak fine granular; very friable; many fine, medium, and coarse roots throughout; 30 percent channers; very strongly acid; clear wavy boundary.

BE—12 to 16 inches; yellowish brown (10YR 5/6) very channery loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots throughout; 40 percent channers; very strongly acid; clear wavy boundary.

Bw1—16 to 23 inches; strong brown (7.5YR 5/6) very channery loam; weak medium and coarse subangular blocky structure; friable; few fine roots throughout; very few clay films on faces of peds, in pores, and on rock fragments; 45 percent channers; very strongly acid; clear wavy boundary.

Bw2—23 to 38 inches; strong brown (7.5YR 5/6) very channery loam; weak medium and coarse subangular blocky structure; friable; few fine roots throughout; common discontinuous faint clay films on faces of peds, in pores, and on rock fragments; 45 percent channers; very strongly acid; clear wavy boundary.

Bw3—38 to 49 inches; strong brown (7.5YR 5/6) very channery sandy loam; weak medium platy structure parting to weak medium subangular blocky; firm; few fine roots throughout; common discontinuous clay films on faces of peds, in pores, and on rock fragments; 50 percent channers; very strongly acid; gradual wavy boundary.

C—49 to 65 inches; strong brown (7.5YR 4/6) very channery sandy loam; massive; firm; 55 percent channers; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5) throughout

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3

Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—15 to 35 percent

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—loam, sandy loam, or loamy sand
Content of rock fragments—10 to 40 percent

BE horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—15 to 70 percent

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—loam or sandy loam; loamy sand in the lower part of this horizon
Content of rock fragments—15 to 70 percent

C horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—sandy loam, loam, or loamy sand
Content of rock fragments—35 to 80 percent

Holly Series

Depth class: Very deep
Drainage class: Poorly drained (fig. 20)
Permeability: Moderately slow
Landscape position: Flood plains
Flooding: Frequent (more than a 50 percent chance of flooding in any year)
Parent material: Loamy alluvium
Slope range: 0 to 3 percent
Classification: Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

Representative Pedon

Holly silt loam, in a wooded area along Sleepy Creek, near Johnson's Mill in Morgan County, West Virginia; about 1,450 feet west-northwest of the intersection of State Routes 8 and 26, on a bearing of 283 degrees; USGS Stotlers Crossroads topographic quadrangle; lat. 39 degrees 33 minutes 53 seconds N. and long. 78 degrees 11 minutes 39 seconds W.

A—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure parting to moderate medium granular; friable; many very fine, fine, medium, and coarse roots; common very fine and fine tubular pores; common fine irregular strong brown (7.5YR 4/6) masses of iron accumulation; moderately acid; abrupt smooth boundary.

Bg1—3 to 8 inches; grayish brown (2.5Y 5/2) silt loam; weak medium subangular blocky structure; friable; common very fine, fine, medium, and coarse roots;

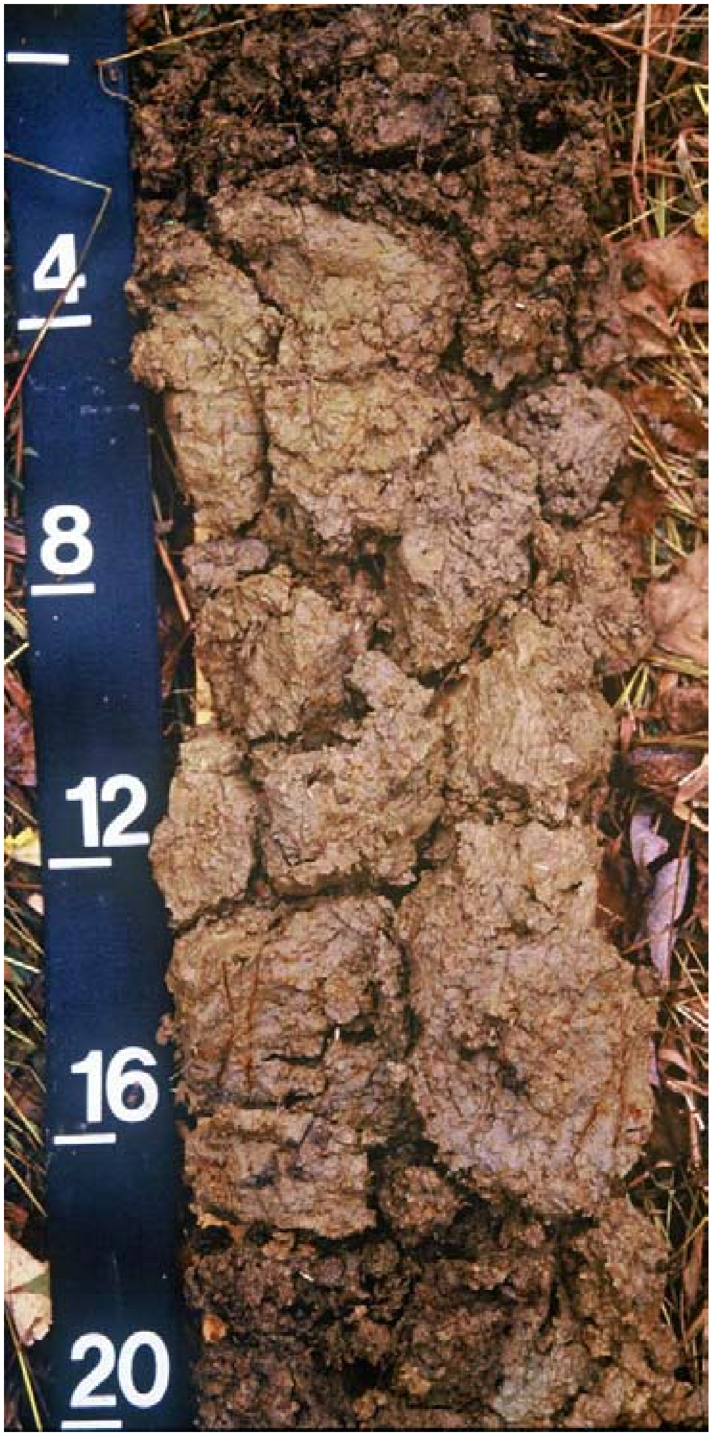

Figure 20.—A profile of the poorly drained Holly soils. The upper 20 inches shows mottling in the grayish brown matrix and strong brown iron concentrations around root channels. These characteristics are typical of soils that have been saturated for long periods of time. Holly soils are used as wetlands in areas that have not been drained. Depth is marked in inches.

common very fine and fine tubular pores; many fine irregular strong brown (7.5YR 4/6) masses of iron accumulation and few fine rounded iron and manganese concretions; moderately acid; clear wavy boundary.

Bg2—8 to 24 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; common very fine and fine roots; common very fine and fine tubular pores; many coarse irregular strong brown (7.5YR 4/6) masses of iron accumulation and few fine rounded iron and manganese concretions; moderately acid; gradual wavy boundary.

Bg3—24 to 39 inches; grayish brown (10YR 5/2) loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; common very fine and fine roots; common very fine and fine tubular pores; many medium and coarse irregular dark yellowish brown (10YR 4/4) masses of iron accumulation and common fine and medium rounded iron and manganese concretions; moderately acid; clear wavy boundary.

Cg—39 to 50 inches; light brownish gray (10YR 6/2) sandy loam; massive; friable; few distinct patchy stains of manganese or of iron and manganese throughout; many medium and coarse irregular dark brown (7.5YR 3/3) masses of iron accumulation and common fine rounded iron and manganese concretions; 10 percent pebbles; slightly acid; gradual wavy boundary.

2Cg—50 to 65 inches; brown (10YR 4/2) gravelly sandy loam; massive; friable; few distinct patchy stains of manganese or of iron and manganese on rock fragments; many coarse irregular dark brown (7.5YR 3/3) and few fine irregular yellowish red (5YR 4/6) masses of iron accumulation; 25 percent pebbles; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 44 inches
Depth to bedrock: More than 60 inches
Reaction: Neutral to moderately acid in the A horizon, neutral to strongly acid in the B horizon, and moderately acid to slightly alkaline in the C horizon

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 or 2
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 10 percent
Other features—high-chroma iron concentrations in shades of red or brown

Bg horizon:
Hue—10YR to 5Y or is neutral
Value—4 to 6
Chroma—0 to 2
Texture of the fine-earth fraction—dominantly silt loam or loam; less commonly sandy loam or silty clay loam
Content of rock fragments—0 to 15 percent
Other features—high-chroma iron concentrations in shades of red or brown

Cg horizon:
Hue—10YR to 5Y or is neutral
Value—4 to 6
Chroma—0 to 2
Texture of the fine-earth fraction—dominantly silt loam, loam, or sandy loam; often stratified below a depth of 40 inches and includes textures of sand through silty clay loam
Content of rock fragments—0 to 25 percent

Hustontown Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Landscape position: Concave footslopes and toeslopes
Flooding: None
Parent material: Colluvium derived from acid red shale, siltstone, and sandstone
Slope range: 3 to 8 percent
Classification: Fine-loamy, mixed, active, mesic Oxyaquic Fragiudalfs

Representative Pedon

Hustontown silt loam, in a pastured area, about 1.15 miles west of Dickeys Mountain, in Thompson Township in Fulton County, Pennsylvania; 1.4 miles northeast of the intersection of Pennsylvania Routes 2002 and 0928 and about 1,800 feet west of Route 0928; USGS Big Cove Tannery topographic quadrangle; lat. 39 degrees 46 minutes 35 seconds N. and long. 78 degrees 05 minutes 58 seconds W.

Ap—0 to 8 inches; dark reddish gray (5YR 4/2) silt loam; weak fine granular structure; friable, nonsticky and nonplastic; many fine and medium roots throughout; 5 percent subangular shale and sandstone channers; moderately acid; abrupt smooth boundary.

BE—8 to 12 inches; reddish brown (5YR 5/3) silt loam; weak fine granular structure; friable, nonsticky and nonplastic; common fine and medium roots throughout; 5 percent subangular shale and sandstone channers; moderately acid; clear wavy boundary.

Bt1—12 to 20 inches; reddish brown (5YR 5/4) silt loam; moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; common fine and medium roots throughout; few distinct clay films on faces of peds and in pores; 10 percent subangular shale and sandstone channers; moderately acid; clear wavy boundary.

Bt2—20 to 30 inches; variegated channery silt loam, 80 percent yellowish red (5YR 5/6) and 20 percent reddish brown (5YR 5/3); moderate medium subangular blocky structure; firm, slightly sticky and slightly plastic; few fine and medium roots throughout; few distinct clay films on faces of peds and in pores; common fine and medium distinct pinkish gray (5YR 6/2) iron depletions on faces of peds and in pores; 15 percent subangular shale and sandstone channers; strongly acid; clear wavy boundary.

Btx1—30 to 55 inches; reddish brown (5YR 5/4) channery silt loam; moderate very coarse prismatic structure parting to moderate fine and medium platy; very firm and brittle, slightly sticky and slightly plastic; few fine roots between vertical faces of peds; common prominent continuous light gray (5YR 7/1) clay films on vertical faces of peds; few prominent black (N 2/0) iron and manganese stains on faces of platy peds; few medium distinct pinkish gray (5YR 7/2) iron depletions in the matrix; 20 percent subangular shale and sandstone channers; moderately acid; gradual wavy boundary.

Btx2—55 to 65 inches; strong brown (7.5YR 5/6) channery silty clay loam; few medium prominent pinkish gray (5YR 7/2) iron depletions in the matrix; moderate very coarse prismatic structure parting to moderate medium platy; very firm and brittle, slightly sticky and slightly plastic; very few fine roots between vertical faces of peds; common prominent continuous light gray (5YR 7/1) clay films on vertical faces of peds; very few prominent black (N 2/0) iron and manganese stains on faces of platy peds; 20 percent subangular sandstone and shale channers; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 65 inches
Depth to bedrock: More than 60 inches
Depth to the fragipan: 18 to 32 inches
Reaction: In unlimed areas, extremely acid to strongly acid in the upper part of the solum and slightly acid to strongly acid in the lower part of the solum

A horizon:
Hue—5YR or 7.5YR
Value—2 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 10 percent

BE horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—5 to 30 percent

Bt horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam
Content of rock fragments—5 to 30 percent
Other features—high-chroma iron concentrations in shades of red or yellow and low-chroma iron depletions in shades of gray in the lower part of this horizon

Btx horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam, silty clay loam, clay loam, or loam
Content of rock fragments—10 to 50 percent
Other features—high-chroma iron concentrations in shades of red or yellow and low-chroma iron depletions in shades of gray

Klinesville Series

Depth class: Shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Landscape position: Gently sloping to very steep, convex ridgetops, shoulder slopes, and backslopes
Flooding: None
Parent material: Residuum derived from red shale and fine grained sandstone; mostly members of the Hampshire geologic formation
Slope range: 3 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

Representative Pedon

Klinesville channery loam, in a wooded area in Morgan County, West Virginia; about 950 feet east of County Route 9/14 and 8,300 feet, by road, north of its intersection with State Route 9; USGS Paw Paw topographic quadrangle;

lat. 39 degrees 33 minutes 07 seconds N. and long. 78 degrees 23 minutes 34 seconds W.

A—0 to 2 inches; channery loam, dark reddish brown (5YR 3/2) rubbed; moderate very fine granular structure; very friable; many very fine, fine, and medium roots throughout; many very fine and fine vesicular pores; 25 percent subangular sandstone channers; very strongly acid; abrupt wavy boundary.

E—2 to 5 inches; very channery loam, reddish brown (5YR 5/4) rubbed; weak fine granular structure; very friable; many very fine, fine, and medium roots throughout; many very fine and fine vesicular pores; 35 percent subangular sandstone channers; very strongly acid; clear wavy boundary.

Bw—5 to 14 inches; very channery loam, reddish brown (2.5YR 4/4) exterior; weak medium subangular blocky structure; friable; common fine and medium roots throughout; common very fine and fine vesicular and tubular pores; 45 percent subangular sandstone channers; very strongly acid; clear wavy boundary.

C—14 to 18 inches; very channery loam, dark reddish brown (2.5YR 3/4) exterior; massive; friable; common fine and medium roots throughout; common very fine and fine vesicular and tubular pores; 60 percent subangular sandstone channers; very strongly acid; clear smooth boundary.

R—18 inches; dusky red (10R 3/4), moderately weathered, fine grained sandstone bedrock.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Depth to bedrock: 10 to 20 inches
Reaction: In unlimed areas, very strongly acid to moderately acid throughout
Content of rock fragments: 15 to 30 percent in the A or Ap horizon, 15 to 40 percent in the E horizon, 15 to 75 percent in the B horizon, and 40 to 90 percent in the C horizon

A or Ap horizon:
Hue—5YR
Value—2 to 4
Chroma—2 to 4
Texture—channery loam

E horizon (if it occurs):
Hue—5YR
Value—4 or 5
Chroma—3 or 4
Texture—channery or very channery analogs of loam

Bw horizon:
Hue—5YR to 10R
Value—3 to 5
Chroma—3 to 6
Texture—channery, very channery, and extremely channery analogs of loam or silt loam

C horizon:
Hue—5YR to 10R
Value—3 or 4
Chroma—3 to 6
Texture—very channery or extremely channery analogs of loam or silt loam

Lehew Series

Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Landscape position: Very steep, convex nose slopes and shoulder slopes
Flooding: None
Parent material: Residuum derived from interbedded reddish, fine grained sandstone and siltstone; mostly members of the Hampshire geologic formation
Slope range: 35 to 65 percent
Classification: Loamy-skeletal, siliceous, semiactive, mesic Typic Dystrudepts

Representative Pedon

Lehew channery fine sandy loam, in a very steep, wooded area on the western slope of Sideling Hill Mountain in Morgan County, West Virginia; about 880 feet north-northeast of the intersection of State Routes 18 and 12, on a bearing of 47 degrees; USGS Paw Paw topographic quadrangle; lat. 39 degrees 32 minutes 52 seconds N. and long. 78 degrees 23 minutes 59 seconds W.

Oi—0 to 0.5 inch; slightly decomposed organic matter from hardwood leaf litter; fibric material.
A—0.5 inch to 4 inches; dark brown (7.5YR 3/2) channery fine sandy loam; very fine and fine granular structure; very friable; many very fine, fine, and medium roots; 25 percent angular sandstone channers; very strongly acid; clear irregular boundary.
E/A—4 to 6 inches; very channery fine sandy loam, 60 percent brown (7.5YR 4/3) and 40 percent dark brown (7.5YR 3/3); weak fine granular structure; very friable; many fine and medium roots; 40 percent angular sandstone channers; very strongly acid; clear wavy boundary.
BE—6 to 8 inches; reddish brown (5YR 4/4) channery fine sandy loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; 20 percent angular sandstone channers; very strongly acid; gradual wavy boundary.
Bw1—8 to 18 inches; reddish brown (5YR 4/3) channery fine sandy loam; weak medium subangular blocky structure; friable; common fine, medium, and coarse roots; 30 percent angular sandstone channers; very strongly acid; gradual wavy boundary.
Bw2—18 to 29 inches; reddish brown (5YR 4/3) very channery sandy loam; weak fine and medium subangular blocky structure; friable; few fine, medium, and coarse roots; 40 percent angular sandstone channers; strongly acid; gradual wavy boundary.
C—29 to 35 inches; dark reddish brown (2.5YR 3/3) very channery sandy loam; massive; friable; few very fine, fine, and medium roots; 55 percent angular sandstone channers; strongly acid; abrupt wavy boundary.
R—35 inches; dark reddish brown (2.5YR 3/3), moderately weathered, fractured and tilted, fine grained sandstone bedrock.

Range in Characteristics

Thickness of the solum: 15 to 30 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, very strongly acid or strongly acid (pH 4.5 to 5.5) throughout the profile
Content of rock fragments: 15 to 35 percent in the A horizon, 15 to 40 percent in the E or E/A horizon, 25 to 40 percent in the B horizon, and 35 to 90 percent in the C horizon

A horizon:
Hue—10YR or 7.5YR
Value—3 or 4
Chroma—1 or 2
Texture—channery fine sandy loam

E horizon:
Hue—7.5YR or 5YR
Value—4 to 6
Chroma—2 to 4
Texture—channery or very channery analogs of fine sandy loam, sandy loam, or loam

B horizon:
Hue—5YR or 2.5YR
Value—3 to 5
Chroma—3 to 6
Texture—channery or very channery analogs of fine sandy loam, sandy loam, or loam

C horizon:
Hue—5YR or 2.5YR
Value—3 to 5
Chroma—2 to 4
Texture—very channery or extremely channery analogs of sandy loam, fine sandy loam, loamy sand, or loam

Lindside Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landscape position: Nearly level flood plains, mainly along the Cacapon River
Flooding: Occasional (a 10 to 50 percent chance of flooding in any year)
Parent material: Alluvium washed from limestone-influenced soils on uplands
Slope range: 0 to 3 percent
Classification: Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts

Representative Pedon

Lindside silt loam, in a meadow in Hampshire County, West Virginia; about 100 yards east of South Branch River, 1 mile north of Saw Mill Run, and about 675 yards west-northwest of State Route 8.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; moderately acid; clear smooth boundary.
BA—7 to 15 inches; brown (10YR 4/3) silt loam; weak and moderate fine subangular blocky structure; friable; moderately acid; clear wavy boundary.
Bw—15 to 30 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; firm; few medium distinct yellowish brown (10YR 5/6) and dark reddish brown (5YR 2/2) iron concentrations; moderately acid; clear wavy boundary.
BC—30 to 48 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; many medium and coarse distinct light brownish gray (10YR 6/2) iron depletions; many medium and coarse distinct reddish brown (5YR 4/3) iron concentrations; moderately acid; clear smooth boundary.

Cg—48 to 60 inches; dark yellowish brown (10YR 4/4) stratified silty clay loam, fine sandy loam, and silt loam; massive; many medium faint grayish brown (10YR 5/2) iron depletions; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to slightly alkaline (pH 5.1 to 7.8) throughout
Content of rock fragments: 0 to 5 percent above a depth of 40 inches and 0 to 30 percent below a depth of 40 inches

Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—silt loam

BA horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Texture—silt loam

Bw horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Other features—high-chroma iron concentrations in shades of red and low-chroma iron depletions in shades of gray begin at some depth between 14 and 24 inches

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Other features—high-chroma iron concentrations in shades of red and low-chroma iron depletions in shades of gray

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam, silty clay loam, loam, clay loam, very fine sandy loam, fine sandy loam, and sandy loam or stratified layers of any of these textures
Other features—high-chroma iron concentrations in shades of red and low-chroma iron depletions in shades of gray

Litz Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Landscape position: Strongly sloping to very steep upland ridges, shoulder slopes, and backslopes

Flooding: None
Parent material: Residuum derived from leached, calcareous shale interbedded with widely spaced shaly limestone
Slope range: 8 to 65 percent
Classification: Loamy-skeletal, mixed, active, mesic Ruptic-Ultic Dystrudepts

Representative Pedon

Litz channery silt loam, in a very steep, wooded area on the western aspect of Warm Springs Ridge in Morgan County, West Virginia; about 1,150 feet southeast of the intersection of State Routes 9 and 9/18, on a bearing of 142 degrees, and about 750 feet east of Sir Johns Run; USGS Stotlers Crossroads topographic quadrangle; lat. 39 degrees 37 minutes 19 seconds N. and long. 78 degrees 14 minutes 42 seconds W.

Oe—0 to 0.5 inch; moderately decomposed organic matter from hardwood leaf litter; hemic material.
A—0.5 inch to 1.5 inches; very dark grayish brown (10YR 3/2) channery silt loam; moderate fine and medium granular structure; very friable; many very fine, fine, and medium roots; 20 percent angular shale channers; very strongly acid; abrupt wavy boundary.
E—1.5 to 4 inches; yellowish brown (10YR 5/4) channery silt loam; moderate fine and medium granular structure; very friable; many very fine, fine, medium, and coarse roots; 20 percent angular shale channers; very strongly acid; clear wavy boundary.
BE—4 to 9 inches; yellowish brown (10YR 5/6) very channery silt loam; weak fine and medium subangular blocky structure; friable; many very fine, fine, and medium roots; 35 percent angular shale channers; very strongly acid; clear wavy boundary.
Bw/Bt—9 to 27 inches; 55 percent yellowish brown (10YR 5/6) very channery silt loam (Bw part) and 45 percent strong brown (7.5YR 5/6) very channery silty clay loam (Bt part); moderate fine and medium subangular blocky structure; friable; common very fine, fine, medium, and coarse roots; few faint discontinuous yellowish red (5YR 4/6) clay films on ped faces and on rock fragments in the Bt part; 40 percent angular shale channers; very strongly acid; clear irregular boundary.
C—27 to 31 inches; strong brown (7.5YR 5/6) extremely channery silty clay loam; weak very fine and fine platy structure; common very fine, fine, medium, and coarse roots; few faint discontinuous yellowish red (5YR 4/6) clay films on rock fragments; 80 percent angular shale channers; very strongly acid; abrupt irregular boundary.
R—31 inches; hard, olive gray, tilted shale bedrock.

Range in Characteristics

Thickness of the solum: 10 to 30 inches
Depth to bedrock: 20 to 40 inches
Reaction: In unlimed areas, very strongly acid to moderately acid throughout (pH 4.5 to 6.0)

A horizon:
Hue—7.5YR or 10YR
Value—2 to 6
Chroma—2 to 6
Texture of the fine-earth fraction—silt loam
Content of rock fragments—15 to 35 percent

E horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 8
Chroma—2 to 4
Texture of the fine-earth fraction—loam or silt loam
Content of rock fragments—5 to 65 percent

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—5 to 65 percent

Bw/Bt horizon:
Hue—5YR to 2.5Y
Value—4 or 5
Chroma—3 to 8
Texture of the fine-earth fraction—loam or silt loam in the Bw part and silty clay loam or clay loam in the Bt part
Content of rock fragments—35 to 70 percent

C horizon (if it occurs):
Hue—2.5YR to 5Y
Value—4 to 6
Chroma—1 to 6
Texture of the fine-earth fraction—loam, silt loam, clay loam, or silty clay loam
Content of rock fragments—35 to 90 percent

Melvin Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Landscape position: Flood plains, mainly along the Potomac River; often on the backswamp of the flood plain, next to the adjacent terrace or upland landscape
Flooding: Frequently flooded for brief periods
Parent material: Mixed alluvium derived from soils formed in limestone, shale, sandstone, or siltstone
Slope range: 0 to 2 percent
Classification: Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

Representative Pedon

Melvin silt loam, in Quincy Township, Franklin County, Pennsylvania; 1,300 feet northwest of the intersection of Pennsylvania Routes 0316 and 2016; USGS Waynesboro topographic quadrangle; lat. 39 degrees 48 minutes 23 seconds N. and long. 77 degrees 36 minutes 42 seconds W.

Ap1—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable, nonsticky and nonplastic; many fine and medium roots; neutral; clear wavy boundary.
Ap2—2 to 10 inches; grayish brown (10YR 5/2) silt loam; weak fine granular structure; friable, slightly sticky and slightly plastic; many fine and medium roots; few fine prominent dark brown (7.5YR 4/4) iron concentrations; neutral; clear wavy boundary.

Bg1—10 to 22 inches; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine roots; common medium distinct dark brown (10YR 4/3) iron concentrations; neutral; clear wavy boundary.

Bg2—22 to 36 inches; grayish brown (10YR 5/2) silty clay loam; weak medium subangular blocky structure; friable, slightly sticky and slightly plastic; common medium distinct dark brown (10YR 4/3) iron concentrations; neutral; clear wavy boundary.

Cg1—36 to 62 inches; dark grayish brown (2.5Y 4/2) silt loam; massive; friable, slightly sticky and nonplastic; few prominent black (10YR 2/1) stains on pebbles; common medium prominent dark gray (10YR 4/1) iron depletions; common medium prominent dark yellowish brown (10YR 4/4) iron concentrations; 5 percent rounded chert and sandstone pebbles; neutral; gradual wavy boundary.

Cg2—62 to 68 inches; variegated dark gray (5Y 4/1 and N 4/0) sandy loam; massive; friable, nonsticky and nonplastic; few prominent black (5Y 2/1) stains on pebbles; 5 percent rounded chert and sandstone pebbles and cobbles; neutral; abrupt wavy boundary.

Cg3—68 to 72 inches; variegated dark grayish brown (2.5Y 4/2) and dark gray (5Y 4/1) stratified silt and sand; massive; friable, nonsticky and nonplastic; 5 percent rounded chert and sandstone pebbles and cobbles; neutral.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 60 inches
Reaction: Moderately acid to mildly alkaline throughout

Ap horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—1 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—0 to 5 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Bg horizon:
Hue—10YR or is neutral
Value—4 to 7
Chroma—0 to 2
Texture of the fine-earth fraction—silt loam or silty clay loam
Content of rock fragments—0 to 5 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Cg horizon:
Hue—10YR to 5Y
Value—4 to 7
Chroma—1 or 2
Texture of the fine-earth fraction—silt loam, silty clay loam, or loam; often stratified subhorizons of clay, loams, and sands or sand and gravel
Content of rock fragments—0 to 20 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Monongahela Series

Depth class: Very deep
Drainage class: Moderately well drained (fig. 21)
Permeability: Moderate above the fragipan and moderately slow or slow in the fragipan
Landscape position: Nearly level to strongly sloping stream terraces along Sleepy Creek, Cacapon River, and Potomac River
Flooding: None
Parent material: Old alluvium washed from upland soils derived largely from acid sandstone and shale
Slope range: 0 to 15 percent
Classification: Fine-loamy, mixed, semiactive, mesic Typic Fragiudults

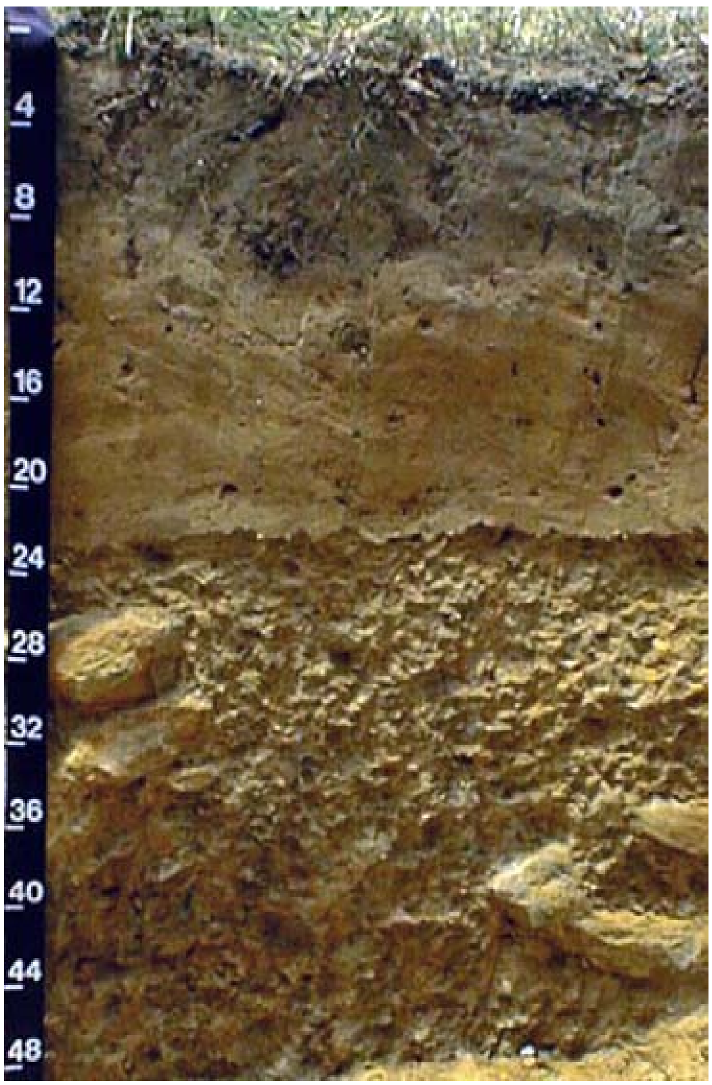

Figure 21.—A profile of the moderately well drained Monongahela soils. These soils have a very firm, slowly permeable fragipan at a depth of about 24 inches. They have a perched water table during periods of seasonal wetness because of the fragipan. Depth is marked in inches.

Representative Pedon

Monongahela silt loam, in a hayfield in the Shanghai area of Berkeley County, West Virginia; about 1,650 feet south and 85 degrees west of the iron bridge crossing Back Creek along State Route 18; USGS Tablers Station topographic quadrangle; lat. 39 degrees 26 minutes 08 seconds N and long. 78 degrees 07 minutes 25 seconds W.

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) silt loam; moderate very fine and fine granular structure; very friable; common medium and coarse roots throughout; slightly acid; abrupt smooth boundary.

Bt1—10 to 21 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; many very fine and fine roots throughout; many distinct continuous clay films on faces of peds and in pores; 5 percent pebbles; very strongly acid; clear wavy boundary.

Bt2—21 to 27 inches; dark yellowish brown (10YR 4/6) silt loam; moderate fine and medium subangular blocky structure; friable; few very fine and fine roots throughout; common distinct continuous clay films on faces of peds and in pores; common fine and medium distinct yellowish brown (10YR 5/8) iron concentrations; common fine and medium prominent gray (10YR 6/1) iron depletions; 5 percent pebbles; very strongly acid; clear wavy boundary.

Btx1—27 to 45 inches; light olive brown (2.5Y 5/4) silt loam; strong coarse prismatic structure parting to weak thin and medium platy; very firm and brittle; common distinct continuous clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/8) iron concentrations; common fine and medium prominent gray (10YR 6/1) iron depletions; very strongly acid; gradual wavy boundary.

Btx2—45 to 53 inches; yellowish brown (10YR 5/8) clay loam; strong coarse prismatic structure parting to weak medium platy; firm and brittle; few distinct discontinuous clay films on faces of peds; common medium prominent gray (10YR 6/1) iron depletions; 10 percent pebbles; very strongly acid; gradual wavy boundary.

C—53 to 65 inches; yellowish brown (10YR 5/6) sandy loam; weak very coarse prismatic structure; friable; many medium and coarse prominent gray (10YR 6/1) iron depletions; 10 percent pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Depth to bedrock: More than 60 inches
Depth to the fragipan: 18 to 30 inches
Reaction: In unlimed areas, strongly acid or very strongly acid (pH 4.5 to 5.5)

Ap 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 15 percent

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam, silty clay loam, loam, or clay loam
Content of rock fragments—0 to 20 percent
Other features—high-chroma iron concentrations in shades of red or yellow and low-chroma iron depletions in shades of gray in the lower part of the Bt horizon

Btx horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—3 to 8
Texture of the fine-earth fraction—loam, silt loam, clay loam, or sandy clay loam
Content of rock fragments—0 to 25 percent
Other features—high-chroma iron concentrations in shades of red or yellow and low-chroma iron depletions in shades of gray

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—2 to 8
Texture of the fine-earth fraction—sandy loam, loam, silt loam, silty clay loam, or clay loam
Content of rock fragments—10 to 40 percent
Other features—high-chroma iron concentrations in shades of red and yellow and low-chroma iron depletions in shades of gray

Murrill Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate above a depth of 40 inches and moderate or moderately slow below a depth of 40 inches
Landscape position: Upland side slopes and benches; mostly on the western aspect of Warm Springs Ridge; sinkholes common in some areas
Flooding: None
Parent material: Colluvium derived from sandstone over limestone residuum
Slope range: 3 to 35 percent
Classification: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Representative Pedon

Murrill loam, in a wooded area used as a campground in Morgan County, West Virginia; about 1,100 feet east of State Route 9/10 and about 3 miles south of its intersection with State Route 9; USGS Great Cacapon topographic quadrangle; lat. 39 degrees 34 minutes 06 seconds N. and long. 78 degrees 15 minutes 48 seconds W.

A—0 to 2 inches; very dark gray (10YR 3/1) loam; moderate very fine granular structure; very friable; many roots; 10 percent rock fragments; strongly acid; abrupt wavy boundary.
E—2 to 9 inches; brown (10YR 5/3) loam; weak very fine subangular blocky structure; very friable; common roots; 10 percent rock fragments; very strongly acid; clear wavy boundary.
BE—9 to 13 inches; yellowish brown (10YR 5/4) gravelly loam; weak medium subangular blocky structure; friable; few roots; 20 percent rock fragments; very strongly acid; clear wavy boundary.
Bt1—13 to 26 inches; strong brown (7.5YR 5/6) gravelly loam; moderate medium subangular blocky structure; friable; few roots; few discontinuous clay films on faces of peds; 30 percent rock fragments; very strongly acid; clear wavy boundary.
Bt2—26 to 43 inches; strong brown (7.5YR 5/6) gravelly sandy clay loam; moderate medium subangular blocky structure; friable; few roots; common discontinuous

clay films on faces of peds and on rock fragments; 30 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt3—43 to 60 inches; yellowish red (5YR 5/6) silty clay; moderate and strong thick platy structure; firm; common continuous very pale brown (10YR 7/3) clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of the solum: 60 inches or more
Depth to bedrock: More than 72 inches
Reaction: In unlimed areas, strongly acid or very strongly acid throughout

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 4
Texture of the fine-earth fraction—loam
Content of rock fragments—10 to 30 percent

E horizon:
Hue—10YR
Value—5 or 6
Chroma—3 to 6
Texture of the fine-earth fraction—loam or sandy loam
Content of rock fragments—10 to 30 percent

Bt horizon:
Hue—10YR to 5YR
Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—loam, silt loam, sandy clay loam, clay loam, or silty clay loam
Content of rock fragments—0 to 30 percent

2Bt horizon:
Hue—2.5YR to 7.5YR
Value—4 or 5
Chroma—4 to 8
Texture of the fine-earth fraction—clay loam, silty clay loam, silty clay, or clay
Content of rock fragments—0 to 40 percent

Opequon Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate or moderately slow
Landscape position: Steep or very steep limestone uplands
Flooding: None
Parent material: Residuum derived from Helderberg Limestone
Slope range: 55 to 100 percent
Classification: Clayey, mixed, active, mesic Lithic Hapludalfs

Representative Pedon

Opequon channery silty clay loam, in a very steep, wooded area in Morgan County, West Virginia; about 1,880 feet east-southeast of the mouth of Connor Hollow on Cacapon River, on a bearing of 120 degrees, and 3,520 feet east-northeast of the intersection of State Routes 9 and 7, on a bearing of 76 degrees; USGS Great Cacapon topographic quadrangle; lat. 39 degrees 31 minutes 23 seconds N. and long. 78 degrees 20 minutes 25 seconds W.

A—0 to 2 inches; dark brown (7.5YR 3/2) channery silty clay loam; moderate very fine and fine granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; common very fine interstitial pores; 15 percent limestone channers; neutral; abrupt wavy boundary.

Bt1—2 to 8 inches; channery silty clay, 60 percent dark yellowish brown (10YR 4/4) and 40 percent strong brown (7.5YR 4/6); moderate fine subangular blocky structure; firm, sticky and plastic; many very fine, fine, medium, and coarse roots throughout; common fine tubular and interstitial pores; common coarse dark brown (7.5YR 3/2) krotovinas; common faint discontinuous clay films on faces of peds; 20 percent limestone channers; slightly alkaline; clear wavy boundary.

Bt2—8 to 13 inches; strong brown (7.5YR 4/6) channery silty clay; moderate medium subangular blocky structure; firm, sticky and plastic; common very fine, fine, medium, and coarse roots throughout; few very fine tubular and interstitial pores; common faint discontinuous clay films on faces of peds; 30 percent limestone channers; slightly alkaline; clear wavy boundary.

C—13 to 16 inches; strong brown (7.5YR 4/6) very channery silty clay; massive; firm, sticky and plastic; few very fine roots throughout; few very fine interstitial pores; few faint patchy clay films on rock fragments; 35 percent limestone channers; moderately alkaline; abrupt irregular boundary.

R—16 inches; hard, gray limestone bedrock.

Range in Characteristics

Thickness of the solum: 12 to 20 inches
Depth to bedrock: 12 to 20 inches
Reaction: Moderately acid to slightly alkaline (pH 5.6 to 7.8)

A horizon:
Hue—10YR or 7.5YR
Value—3 or 4
Chroma—1 to 4
Texture of the fine-earth fraction—silty clay loam
Content of rock fragments—15 to 25 percent

Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silty clay or clay
Content of rock fragments—0 to 35 percent

C horizon (if it occurs):
Hue—5YR to 10YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silty clay or clay
Content of rock fragments—0 to 35 percent

Philo Series

Depth class: Deep or very deep
Drainage class: Moderately well drained
Permeability: Moderate

Landscape position: Nearly level flood plains, mainly along Sleepy Creek and its tributaries
Flooding: Frequent or occasional
Parent material: Recent alluvium washed from upland soils derived from acid sandstone and shale
Slope range: 0 to 3 percent
Classification: Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts

Representative Pedon

Philo silt loam, in a hayfield along Back Creek, east of Shanghai in Berkeley County, West Virginia; about 5,800 feet north-northeast of the County Route 18 bridge over Back Creek, on a bearing of 24 degrees; USGS Tablers Station topographic quadrangle; lat. 39 degrees 26 minutes 57 seconds N. and long. 78 degrees 06 minutes 25 seconds W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam; moderate fine and medium granular structure; friable; common very fine, fine, medium, and coarse roots throughout; 5 percent pebbles; slightly acid; abrupt smooth boundary.

Bw1—10 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium and coarse subangular blocky structure parting to weak medium granular; friable; common very fine and fine roots throughout; common fine and medium very dark brown iron and manganese concretions; slightly acid; clear wavy boundary.

Bw2—17 to 29 inches; yellowish brown (10YR 5/4) silt loam; weak medium or coarse subangular blocky structure parting to moderate medium granular; friable; few very fine roots throughout; common fine and medium very dark brown iron and manganese concretions; few fine light brownish gray (10YR 6/2) iron depletions; few fine dark yellowish brown (10YR 4/6) iron concentrations; very strongly acid; clear wavy boundary.

Bw3—29 to 45 inches; brown (7.5YR 5/4) silt loam; moderate medium subangular blocky structure; friable; few very fine and fine roots throughout; common fine and medium very dark brown iron and manganese concretions; common medium light brownish gray (10YR 6/2) iron depletions and common medium yellowish brown (10YR 5/6) iron concentrations; very strongly acid; clear wavy boundary.

BC—45 to 53 inches; brown (7.5YR 5/4) silt loam; weak coarse subangular blocky structure; friable; few very fine and fine roots throughout; few fine and medium very dark brown iron and manganese concretions; many medium and coarse light brownish gray (10YR 6/2) iron depletions; common fine and medium yellowish brown (10YR 5/6) iron concentrations; very strongly acid; clear wavy boundary.

C—53 to 65 inches; brown (7.5YR 4/4) silt loam; massive; friable; few fine and medium very dark brown iron and manganese concretions; common medium and coarse light brownish gray (10YR 6/2) iron depletions; common medium strong brown (7.5YR 5/6) iron concentrations; very strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 60 inches
Depth to bedrock: 40 to more than 60 inches
Reaction: In unlimed areas, very strongly acid to moderately acid throughout (pH 4.5 to 6.0)

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3

Texture of the fine-earth fraction—silt loam, fine sandy loam, or sandy loam
Content of rock fragments—0 to 20 percent

Bw horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, loam, fine sandy loam, or sandy loam
Content of rock fragments—0 to 20 percent
Other features—high-chroma iron concentrations in shades of red and brown and low-chroma iron depletions in shades of gray

BC horizon:
Colors—similar to those in the Bw horizon
Texture of the fine-earth fraction—similar to those in the Bw horizon

C horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—1 to 4
Texture of the fine-earth fraction—silt loam, loam, or sandy loam
Content of rock fragments—0 to 40 percent
Other features—high-chroma iron concentrations in shades of red and brown and low-chroma iron depletions in shades of gray; gleyed in some pedons

2C horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—1 to 4
Texture of the fine-earth fraction—silt loam, loam, sandy loam, loamy sand, sand, or stratified subhorizons of any of these textures
Content of rock fragments—0 to 75 percent
Other features—high-chroma iron concentrations in shades of red and brown and low-chroma iron depletions in shades of gray; gleyed in some pedons

Pope Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Landscape position: Nearly level flood plains, mainly along Sleepy Creek and its tributaries in the eastern part of the county
Flooding: Frequent or occasional
Parent material: Loamy alluvium washed from upland soils underlain by acid sandstone, siltstone, and shale
Slope range: 0 to 3 percent
Classification: Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts

Representative Pedon

Pope silt loam, in an area previously used for cultivated crops, near Jones Springs in Berkeley County, West Virginia; about 9,600 feet south-southeast of the intersection of Routes 7 and 7/8, on a bearing of 170 degrees; USGS Tablers Station WV topographic quadrangle; lat. 39 degrees 27 minutes 55 seconds N. and long. 78 degrees 05 minutes 25 seconds W.

Ap—0 to 11 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; common very fine and fine roots throughout; moderately acid; clear smooth boundary.

Bw1—11 to 28 inches; brown (10YR 4/3) silt loam; weak medium and coarse subangular blocky structure; very friable; few very fine and fine roots throughout; few faint organic coatings in root channels and pores; moderately acid; clear smooth boundary.

Bw2—28 to 34 inches; brown (10YR 4/3) silt loam; weak fine and medium subangular blocky structure; very friable; few very fine and fine roots throughout; moderately acid; clear wavy boundary.

Bw3—34 to 51 inches; brown (7.5YR 4/4) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine and fine roots throughout; very strongly acid; many faint organic coatings in root channels and pores; very strongly acid; clear wavy boundary.

C—51 to 65 inches; brown (7.5YR 4/4) loam; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.6 to 5.5)

Ap or A horizon:
Hue—10YR
Value—dominantly 4 or 5; ranges from 3 to 6, when dry, in some Ap horizons
Chroma—3 or 4
Texture of the fine-earth fraction—silt loam or fine sandy loam
Content of rock fragments—0 to 15 percent

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture of the fine-earth fraction—silt loam, loam, sandy loam, fine sandy loam, or very fine sandy loam
Content of rock fragments—0 to 30 percent
Other features—high-chroma iron concentrations in shades of red and low-chroma iron depletions in shades of gray below a depth of 40 inches in some pedons

C or 2C horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 6
Texture of the fine-earth fraction—loam, sandy loam, fine sandy loam, loamy sand, sand, or stratified subhorizons of any of these textures
Content of rock fragments—0 to 75 percent
Other features—high-chroma iron concentrations in shades of red and low-chroma iron depletions in shades of gray in some pedons

Rough Series

Depth class: Very shallow
Drainage class: Somewhat excessively drained
Permeability: Rapid
Landscape position: Very steep backslopes, mainly escarpments along the major streams in the survey area
Flooding: None

Parent material: Residuum derived from shale
Slope range: 55 to 100 percent
Classification: Loamy, mixed, active, acid, mesic Lithic Udorthents

Representative Pedon

Rough very channery silt loam, on a very steep, sparsely wooded escarpment above the Cacapon River in Morgan County, West Virginia; south of State Route 9/12 and about 7,800 feet, by road, south of its intersection with State Route 9; USGS Great Cacapon topographic quadrangle; lat. 39 degrees 36 minutes 14 seconds N. and long. 78 degrees 17 minutes 01 second W.

A—0 to 2 inches; very dark gray (10YR 3/1) very channery silt loam; weak very fine granular structure; very friable; many very fine, fine, medium, and coarse roots; many fine and medium interstitial pores; 55 percent angular shale channers; very strongly acid; abrupt wavy boundary.
C—2 to 6 inches; dark yellowish brown (10YR 4/4) extremely channery silt loam; massive; very friable; many fine, medium, and coarse roots; many fine and medium interstitial pores; 75 percent angular shale channers; very strongly acid; clear irregular boundary.
R—6 inches; tilted, highly fractured, olive brown shale bedrock.

Range in Characteristics

Thickness of the solum: 0 to 8 inches
Depth to bedrock: Less than 10 inches
Reaction: Extremely acid to very strongly acid throughout (pH 3.5 to 5.0)

A horizon:
Hue—10YR or 7.5YR
Value—2 to 4
Chroma—1 to 4
Texture of the fine-earth fraction—silt loam
Content of rock fragments—35 to 60 percent

Bw horizon (if it occurs):
Hue—2.5Y to 2.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam
Content of rock fragments—35 to 75 percent

C horizon:
Hue—2.5Y to 2.5YR
Value—4 to 6
Chroma—4 to 8
Texture of the fine-earth fraction—silt loam or loam
Content of rock fragments—60 to 90 percent

Rushtown Series

Depth class: Very deep (fig. 22)
Drainage class: Excessively drained
Permeability: Rapid
Landscape position: Strongly sloping to very steep, concave lower backslopes and footslopes
Flooding: None
Parent material: Colluvium derived from shale (fig. 23)

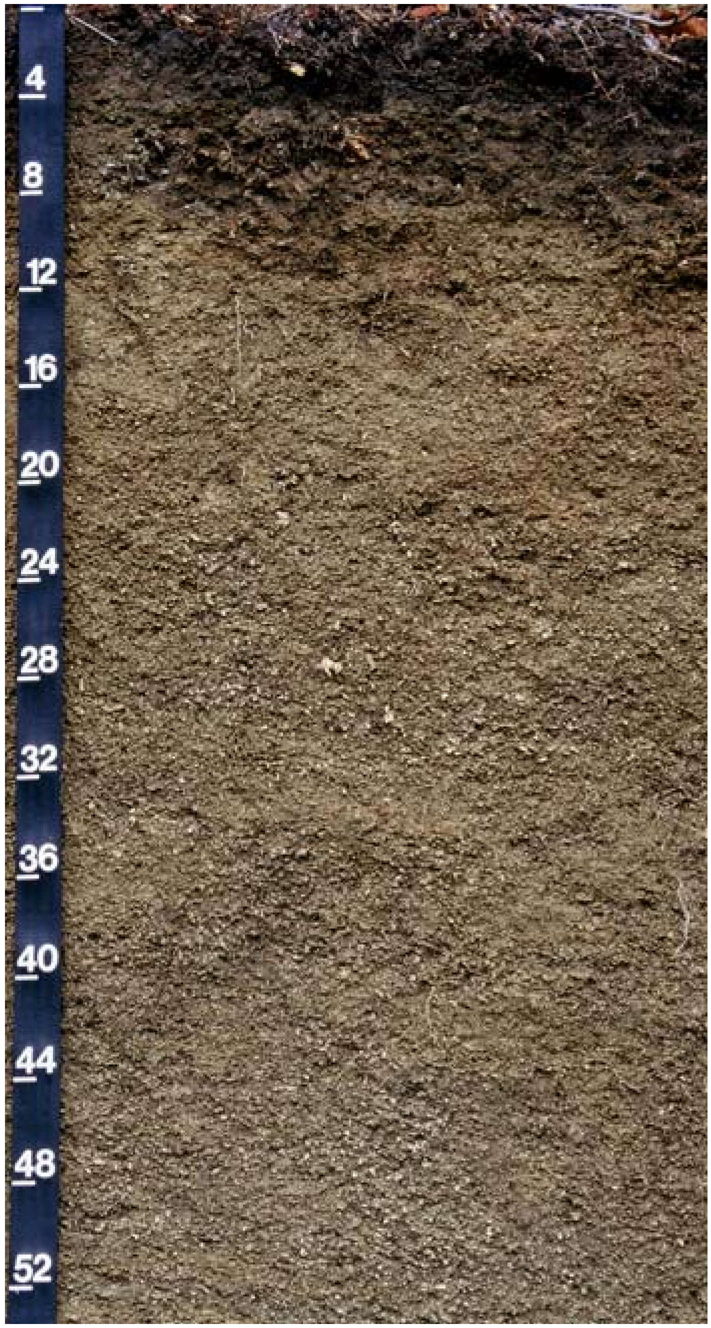

Figure 22.—A profile of the very deep Rushtown soils. These soils formed in deposits of thin shale fragments, known locally as "groundhog shale." Depth is marked in inches.

Slope range: 8 to 65 percent
Classification: Loamy-skeletal over fragmental, mixed, active, mesic Typic Dystrudepts

Representative Pedon

Rushtown channery silt loam, in a wooded area near Cherry Run in Morgan County, West Virginia; about 3,800 feet southwest of the intersection of State Routes 5 and 5/1, on a bearing of 234 degrees; USGS Big Pool topographic quadrangle; lat. 39 degrees 37 minutes 06 seconds N. and long. 78 degrees 02 minutes 06 seconds W.

Oi—0 to 0.5 inch; slightly decomposed organic matter from hardwood leaf litter; fibric material.

A1—0.5 inch to 1.5 inches; very dark grayish brown (10YR 3/2) channery silt loam; weak very fine granular structure; loose; many fine roots; 20 percent fine angular shale channers; moderately acid; clear wavy boundary.

A2—1.5 to 6 inches; dark yellowish brown (10YR 3/4) channery silt loam; moderate fine granular structure; very friable; many fine roots; 30 percent fine angular shale channers; strongly acid; clear wavy boundary.

Bw—6 to 22 inches; yellowish brown (10YR 5/4) very channery silt loam; very weak coarse subangular blocky structure; friable; few fine roots; 40 percent fine angular shale channers; strongly acid; gradual wavy boundary.

C—22 to 65 inches; yellowish brown (10YR 5/4) extremely channery silt loam; single grain; very friable or loose; very few roots; 75 percent fine angular shale fragments; many medium interstitial pores bounded by shale fragments coated with silt loam; strongly acid.

Figure 23.—The substratum of the Rushtown soils consists of 60 to 90 percent thin shale fragments. Depth is marked in inches.

Range in Characteristics

Thickness of the solum: 15 to 35 inches
Depth to bedrock: More than 5 feet
Reaction: In unlimed areas, moderately acid to very strongly acid throughout

A horizon:
Hue—10YR or 2.5Y
Value—2 to 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 or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture of the fine-earth fraction—silt loam
Content of rock fragments—20 to 60 percent

C 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—60 to 90 percent

Schaffenaker Series

Depth class: Moderately deep (fig. 24)
Drainage class: Somewhat excessively drained
Permeability: Rapid
Landscape position: Gently sloping to very steep, convex upland ridgetops and backslopes
Flooding: None
Parent material: Residuum derived from Oriskany Sandstone
Slope range: 3 to 65 percent
Classification: Mesic, coated Typic Quartzipsamments

Representative Pedon

Schaffenaker loamy sand, in a wooded area on Warm Springs Ridge, in Morgan County, West Virginia; 1,500 feet northwest of the intersection of State Routes 522 and 522/3, on a bearing of 314 degrees; USGS Great Cacapon topographic quadrangle; lat. 39 degrees 33 minutes 24 seconds N. and long. 78 degrees 15 minutes 44 seconds W.

Oi—0 to 0.5 inch; slightly decomposed organic matter from hardwood leaf litter; fibric material.
Oe—0.5 to 1 inch; moderately decomposed organic matter from hardwood leaf litter; hemic material.
A—1 to 2 inches; very dark brown (10YR 2/2) loamy sand; 40 percent white (10YR 8/1) uncoated sand grains; weak fine granular structure; very friable; many very fine, fine, and medium roots; 10 percent subrounded sandstone pebbles; very strongly acid; abrupt wavy boundary.
E—2 to 4 inches; brown (10YR 4/3) loamy sand; weak very fine granular structure;

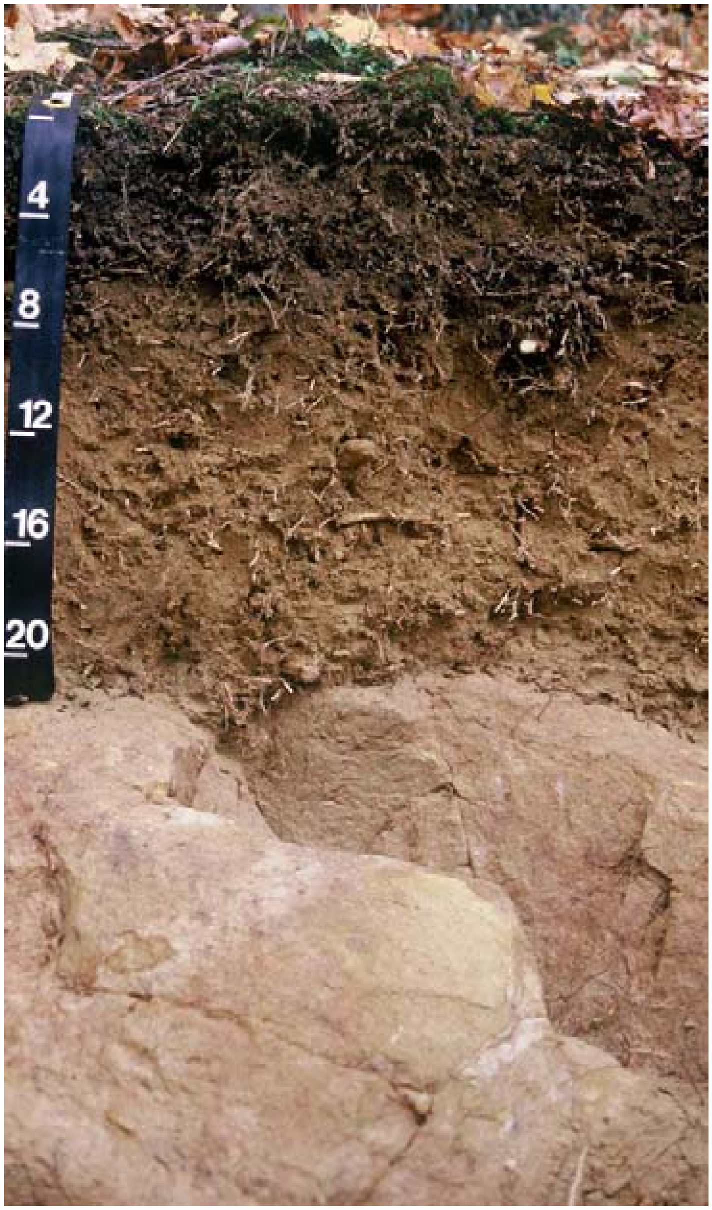

Figure 24.—A profile of the moderately deep Schaffenaker soils. These soils formed in residuum derived from Oriskany Sandstone, which is of Devonian age and is at a depth of about 22 inches. Depth is marked in inches.

very friable; many very fine, fine, and medium roots; 10 percent subrounded sandstone pebbles; very strongly acid; abrupt wavy boundary.

Bw—4 to 18 inches; yellowish brown (10YR 5/6) gravelly loamy sand; weak fine and medium granular structure; very friable; common very fine, fine, medium, and coarse roots; 15 percent subrounded sandstone pebbles; 10 percent weakly cemented pebble-sized aggregates; very strongly acid; clear wavy boundary.

C—18 to 24 inches; yellowish brown (10YR 5/6) gravelly loamy sand; single grain; loose; common very fine, fine, medium, and coarse roots; 20 percent subrounded

sandstone pebbles; 20 percent weakly cemented pebble-sized aggregates; very strongly acid; abrupt irregular boundary.
R—24 inches; moderately weathered sandstone bedrock.

Range in Characteristics

Thickness of the solum: 15 to 30 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to strongly acid throughout

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 or 2
Texture of the fine-earth fraction—loamy sand
Content of rock fragments—5 to 15 percent

E horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture of the fine-earth fraction—loamy sand, loamy fine sand, or sand
Content of rock fragments—0 to 30 percent

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 8
Texture of the fine-earth fraction—loamy sand, loamy fine sand, or sand
Content of rock fragments—0 to 30 percent

C horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 8
Texture of the fine-earth fraction—loamy sand, loamy fine sand, or sand
Content of rock fragments—0 to 50 percent

Sideling Series

Depth class: Very deep
Drainage class: Moderately well drained (fig. 25)
Permeability: Moderately slow in the upper part of the solum and slow in the lower part of the solum and in the substratum
Landscape position: Gently sloping to steep, linear to convex benches, lower mountain backslopes, and footslopes
Flooding: None
Parent material: Sandstone colluvium over shale residuum
Slope range: 3 to 35 percent
Classification: Fine-loamy, siliceous, semiactive, mesic Oxyaquic Hapludults

Representative Pedon

Sideling gravelly loam, in a convex, wooded area on the western aspect of Cacapon Mountain, in Morgan County, West Virginia; about 1,640 feet east of County Route 7 and 2.3 miles, by road, south of the Rock Ford low water bridge on the Cacapon River; USGS Great Cacapon topographic quadrangle; lat. 39 degrees 33 minutes 16 seconds N. and long. 78 degrees 19 minutes 12 seconds W.

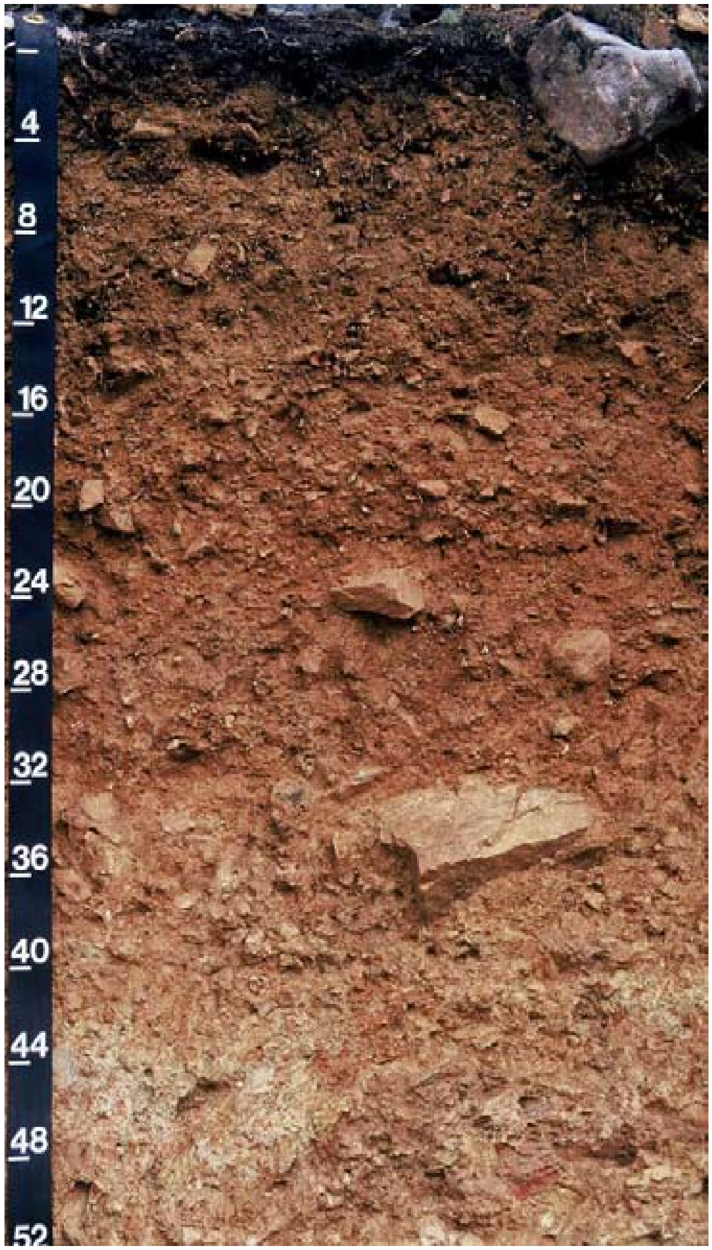

Figure 25.—A profile of the moderately well drained Sideling soils. The mottled colors below a depth of about 32 inches are the result of seasonal saturation. Depth is marked in inches.

Oi—0 to 1 inch; slightly decomposed organic matter from hardwood leaf litter; fibric material.

Oe—1 to 3 inches; very dark gray (10YR 3/1) crushed, moderately decomposed organic matter from hardwood leaf litter; hemic material.

A—3 to 5 inches; gravelly loam, very dark grayish brown (10YR 3/2) crushed; moderate fine and medium granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; 25 percent subrounded sandstone pebbles; very strongly acid; clear wavy boundary.

E—5 to 7 inches; gravelly loam, dark yellowish brown (10YR 4/4) crushed; weak medium and coarse granular structure; very friable; many very fine, fine, medium, and coarse roots throughout; 30 percent subrounded sandstone pebbles; very strongly acid; clear wavy boundary.

BE—7 to 10 inches; gravelly loam, yellowish brown (10YR 5/4) exterior; weak fine and medium subangular blocky structure; friable; common very fine, fine, and medium roots throughout; 15 percent subrounded sandstone pebbles; very strongly acid; clear wavy boundary.

Bt1—10 to 23 inches; gravelly loam, yellowish brown (10YR 5/6) exterior; moderate medium subangular blocky structure; friable; common very fine, fine, and medium roots throughout; few faint clay films on faces of peds and on rock fragments; 20 percent subrounded sandstone pebbles; very strongly acid; clear wavy boundary.

Bt2—23 to 31 inches; gravelly loam, yellowish brown (10YR 5/6) exterior; moderate medium and coarse subangular blocky structure; friable; few very fine and fine roots throughout; few distinct clay films on faces of peds and on rock fragments; 30 percent subrounded sandstone pebbles; very strongly acid; clear wavy boundary.

Bt3—31 to 35 inches; gravelly clay loam, yellowish brown (10YR 5/6) exterior; few fine and medium reddish brown (5YR 5/4 when moist) mottles; weak coarse subangular blocky structure; friable, slightly sticky and slightly plastic; few very fine and fine roots throughout; common distinct clay films on faces of peds and on rock fragments; 30 percent subrounded sandstone pebbles; very strongly acid; clear wavy boundary.

2Bt4—35 to 50 inches; channery clay, strong brown (7.5YR 5/8) exterior; weak coarse platy structure parting to weak coarse subangular blocky; firm, moderately sticky and moderately plastic; few very fine and fine roots throughout; common distinct clay films on faces of peds and on rock fragments; common fine and medium light gray (10YR 7/2) iron depletions; many coarse reddish brown (5YR 5/4) masses of iron accumulation; 30 percent channers; very strongly acid; gradual wavy boundary.

2BC—50 to 62 inches; very flaggy clay loam, strong brown (7.5YR 5/6) exterior; weak coarse platy structure parting to weak coarse subangular blocky; firm, slightly sticky and slightly plastic; few very fine and fine roots between peds; few distinct clay films on faces of peds and on rock fragments; common fine and medium light gray (10YR 7/2) iron depletions; common fine and medium yellowish red (5YR 5/6) masses of iron accumulation; 25 percent flags; 20 percent channers; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 80 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to extremely acid throughout
Content of rock fragments: 15 to 45 percent throughout

A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 4
Texture—loam

E horizon:
Hue—10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam or silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, silt loam, clay loam, or silty clay loam

2Bt horizon:
Hue—5YR to 7.5YR
Value—4 to 6
Chroma—4 to 8
Texture—clay loam, silty clay loam, or clay

2BC horizon:
Hue—5YR to 10YR
Value—4 to 6
Chroma—4 to 8
Texture—loam, silt loam, silty clay loam, or clay loam

Tioga Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and moderate to rapid in the substratum
Landscape position: Nearly level flood plains
Flooding: Occasionally flooded (a 5 to 50 percent chance in any year) for brief periods
Parent material: Alluvium washed from upland soils that were derived from sandstone, siltstone, shale, and limestone
Slope range: 0 to 3 percent
Classification: Coarse-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts

Representative Pedon

Tioga fine sandy loam, in a garden about 10 yards south of an access road in Hardy County, West Virginia; about 400 yards east of the intersection of State Route 7 and Kade Run and about 200 yards west of the South Fork of the South Branch of the Potomac River; USGS Petersburg East topographic quadrangle; lat. 38 degrees 55 minutes 32 seconds N. and long. 79 degrees 00 minutes 34 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak fine and medium granular structure; very friable; common roots; 1 percent rock fragments; moderately acid; clear wavy boundary.
BA—8 to 13 inches; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; few roots; 1 percent rock fragments; moderately acid; clear wavy boundary.
Bw1—13 to 22 inches; dark brown (10YR 3/3) loam; weak medium subangular blocky structure; friable; few roots; 1 percent rock fragments; neutral; gradual wavy boundary.
Bw2—22 to 36 inches; dark brown (10YR 3/3) sandy loam; weak medium subangular blocky structure; friable; few roots; 1 percent rock fragments; neutral; abrupt wavy boundary.
C1—36 to 41 inches; dark yellowish brown (10YR 4/4) very gravelly sandy loam; single grain; very friable; 50 percent rock fragments; neutral; abrupt wavy boundary.

C2—41 to 45 inches; dark yellowish brown (10YR 4/4) sandy loam; massive, very friable; 1 percent rock fragments; neutral; abrupt wavy boundary.
C3—45 to 60 inches; dark yellowish brown (10YR 4/4) extremely gravelly loamy sand; single grain; loose; 70 percent rock fragments; neutral.

Range in Characteristics

Thickness of the solum: 18 to 40 inches
Depth to bedrock: More than 60 inches
Reaction: Strongly acid to neutral (pH 5.1 to 7.3) in the solum and moderately acid to neutral (pH 5.6 to 7.3) in the substratum

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—fine sandy loam
Content of rock fragments—0 to 15 percent

B horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—2 to 4
Texture of the fine-earth fraction—dominantly fine sandy loam, sandy loam, or loam; some thin subhorizons of loamy sand
Content of rock fragments—0 to 35 percent

C horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 4
Texture of the fine-earth fraction—loamy sand, sandy loam, or loam
Content of rock fragments—0 to 70 percent

Tygart Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Landscape position: Nearly level, low river terraces along Sleepy Creek, the Cacapon River, and the Potomac River
Flooding: None
Parent material: Slackwater alluvium washed from soils derived mainly from acid shale
Slope range: 0 to 3 percent
Classification: Fine, mixed, semiactive, mesic Aeric Endoaquults

Representative Pedon

Tygart silt loam, in a meadow in Hampshire County, West Virginia; 800 feet north-northeast of the mouth of Buffalo Creek and 150 feet east of State Route 28.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many roots; moderately acid; clear smooth boundary.
BA—6 to 9 inches; brown (10YR 5/3) silt loam; moderate fine and medium subangular blocky structure; friable; many roots; moderately acid; clear wavy boundary.

Bt—9 to 17 inches; yellowish brown (10YR 5/6) silty clay loam; common medium distinct gray (10YR 6/1) iron depletions; common medium distinct strong brown (7.5YR 5/8) iron concentrations; strong medium and coarse subangular blocky structure; firm; few roots; discontinuous clay films on faces of peds; very strongly acid; clear wavy boundary.
Btg—17 to 32 inches; light brownish gray (10YR 6/2) silty clay; many medium prominent yellowish brown (10YR 5/6) and reddish brown (5YR 3/4) iron concentrations; weak medium and coarse prismatic structure parting to moderate coarse subangular blocky; firm; few roots between prisms; common continuous clay films on faces of peds; very strongly acid; clear wavy boundary.
BCg—32 to 46 inches; light brownish gray (10YR 6/2) silty clay loam; many fine prominent yellowish brown (10YR 5/8) and reddish brown (5YR 4/3) iron concentrations; weak medium and coarse prismatic structure parting to weak coarse subangular blocky; very firm; many black and dark red iron and manganese concretions; 2 percent pebbles; very strongly acid; gradual wavy boundary.
Cg—46 to 60 inches; gray (10YR 6/1) silty clay loam; many coarse prominent strong brown (7.5YR 5/6) and reddish brown (5YR 4/3) iron concentrations; massive; very firm; 2 percent pebbles; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 50 inches
Depth to bedrock: More than 60 inches
Reaction: In unlimed areas, strongly acid or very strongly acid throughout

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 3 percent

BA horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 8
Texture of the fine-earth fraction—silt loam, silty clay loam, or clay loam
Content of rock fragments—0 to 3 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray in some pedons

Bt horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 to 8
Texture of the fine-earth fraction—silty clay loam, clay loam, silty clay, or clay
Content of rock fragments—0 to 3 percent
Other features—high-chroma iron concentrations in shades of red or brown and low-chroma iron depletions in shades of gray

Btg and BCg horizons:
Hue—10YR or 2.5Y or is neutral
Value—5 or 6
Chroma—0 to 2
Texture of the fine-earth fraction—silty clay loam, clay loam, silty clay, or clay

Content of rock fragments—0 to 3 percent
Other features—high-chroma iron concentrations in shades of red or brown

Cg horizon:
Hue—10YR or 2.5Y or is neutral
Value—4 to 6
Chroma—0 to 2
Texture of the fine-earth fraction—silty clay loam, silty clay, or clay
Content of rock fragments—0 to 3 percent
Other features—high-chroma iron concentrations in shades of red or brown

Udorthents

Depth class: Varies
Drainage class: Varies
Permeability: Varies; often moderately slow or slow in areas that have been heavily compacted by equipment
Landscape position: Nearly level to very steep areas that have been drastically disturbed by excavating, grading, filling, or a combination of these practices. Most of these areas are the result of road construction or the construction of commercial or industrial buildings, schools, or recreational facilities, such as ball fields.
Parent material: Excavated materials
Slope range: 0 percent to nearly vertical in excavated areas
Classification: Udorthents

Representative Pedon

Because the characteristics of these soils vary so much, a representative pedon is not given. The texture of the surface layer ranges from sandy loam to clay, with a wide range in size, amount, and kind of rock fragments. Generally, the soils derived from materials excavated from areas underlain by shale or sandstone are loamy in texture.

Range in Characteristics

Thickness of the solum: Varies
Depth to bedrock: Varies from very shallow in excavated areas to very deep in filled areas
Reaction: Varies
Content of rock fragments: Varies

Vanderlip Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Rapid
Landscape position: Moderately steep to very steep, linear or slightly concave eastern backslopes of Warm Springs Ridge
Flooding: None
Parent material: Residuum derived from Oriskany Sandstone
Slope range: 15 to 65 percent
Classification: Mesic, coated Lamellic Quartzipsamments

Representative Pedon

Vanderlip loamy sand, in a very steep, wooded area on the eastern aspect of Warm Springs Ridge in Morgan County, West Virginia; about 350 feet west-southwest of the West Virginia State Department of Highways garage, west of U.S. Route 522 and south of Berkeley Springs; USGS Stotlers Crossroads topographic quadrangle; lat. 39 degrees 36 minutes 12 seconds N. and long. 78 degrees 14 minutes 40 seconds W.

Oi—0 to 2 inches; slightly decomposed organic matter from hardwood leaf litter; fibric material.

A—2 to 6 inches; dark brown (10YR 3/3) loamy sand; weak fine granular structure; very friable; many very fine, fine, and medium roots; 10 percent subrounded sandstone pebbles; strongly acid; clear irregular boundary.

E—6 to 13 inches; dark yellowish brown (10YR 4/6) gravelly loamy sand; single grain; loose; many very fine, fine, and medium roots; 20 percent subrounded sandstone pebbles; strongly acid; clear wavy boundary.

Bw1—13 to 26 inches; yellowish brown (10YR 5/6) very cobbly loamy sand; single grain; loose; common very fine, fine, medium, and coarse roots; 20 percent subrounded sandstone cobbles, 15 percent subrounded sandstone stones, and 5 percent subrounded sandstone pebbles; strongly acid; clear wavy boundary.

Bw2—26 to 38 inches; yellowish brown (10YR 5/6) sand; single grain; loose; common very fine, fine, medium, and coarse roots; few distinct patchy dark brown (10YR 3/3) organic coats in root channels and in pores; 5 percent subrounded sandstone pebbles; moderately acid; clear wavy boundary.

E and Bt1—38 to 50 inches; brownish yellow (10YR 6/6) sand; few thin irregular strong brown (7.5YR 5/6) loamy sand lamellae, 1/8 to ½ inch thick; firm in place and slightly brittle; weakly cemented by iron oxides with common clay bridging between sand grains; single grain; loose; few very fine, fine, and medium roots; few distinct patchy dark brown (10YR 3/3) organic coats in root channels and pores; 10 percent subrounded sandstone pebbles; moderately acid; clear irregular boundary.

E and Bt2—50 to 65 inches; very pale brown (10YR 7/4) very bouldery sand; common irregular strong brown (7.5YR 5/6) loamy sand lamellae, 1/8 inch to 2½ inches thick; firm in place and slightly brittle; weakly cemented by iron oxides with common clay bridging between sand grains; single grain; loose; few very fine and fine roots; 40 percent subrounded sandstone boulders; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Depth to bedrock: More than 8 feet
Reaction: Very strongly acid to moderately acid throughout

A horizon:
Hue—10YR or 7.5YR
Value—2 to 5
Chroma—1 to 3
Texture of the fine-earth fraction—loamy sand
Content of rock fragments—0 to 10 percent

E horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—2 to 6

Texture of the fine-earth fraction—loamy sand or sand
Content of rock fragments—0 to 20 percent

Bw horizon:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—loamy sand or sand
Content of rock fragments—0 to 40 percent

E part of E and Bt horizon:
Hue—10YR or 7.5YR
Value—5 to 7
Chroma—4 to 6
Texture of the fine-earth fraction—loamy sand
Content of rock fragments—0 to 40 percent

Bt part (lamellae) of the E and Bt horizon:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture of the fine-earth fraction—loamy sand
Content of rock fragments—0 to 40 percent

C horizon (if it occurs):
Hue—dominantly 5YR to 2.5Y; often banded or streaked in colors inherited from the parent rock
Value—5 to 7
Chroma—4 to 6
Texture of the fine-earth fraction—sand or loamy sand
Content of rock fragments—0 to 70 percent

Weikert Series

Depth class: Shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Landscape position: Gently sloping to very steep, convex and dissected uplands
Flooding: None
Parent material: Residuum derived from shale, siltstone, and fine grained sandstone
Slope range: 3 to 70 percent
Classification: Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

Representative Pedon

Weikert very channery silt loam, in a grazed woodlot in the Greensburg area of Berkeley County, West Virginia; about 1,400 feet north of the intersection of County Routes 45/4 and 5/9, on a bearing of 354 degrees; USGS Martinsburg topographic quadrangle; lat. 39 degrees 28 minutes 13 seconds N. and long. 77 degrees 53 minutes 52 seconds W.

Oi—0 to 1 inch; slightly decomposed organic matter derived from oaks and pines; fibric material.
A—1 to 3 inches; very dark grayish brown (10YR 3/2) very channery silt loam; moderate fine granular structure; very friable; many fine, medium, and coarse and common very fine roots throughout; 40 percent shale channers; very strongly acid; clear smooth boundary.

Bw—3 to 14 inches; yellowish brown (10YR 5/6) very channery silt loam; weak fine and medium subangular blocky structure; friable; many fine, medium, and coarse and common very fine roots throughout; common distinct silt coatings on faces of peds, in pores, and on shale fragments; 60 percent shale channers; extremely acid; clear wavy boundary.
R—14 inches; tilted and fractured, gray shale bedrock.

Range in Characteristics

Thickness of the solum: 8 to 20 inches
Depth to bedrock: 10 to 20 inches
Reaction: In unlimed areas, extremely acid to strongly acid (pH 3.5 to 5.5)
Content of rock fragments: 15 to 50 percent in the A horizon, 35 to 60 percent in the B horizon, and 60 to 85 percent in the C horizon

A horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—2 to 4
Texture—channery silt loam or very channery silt loam

E horizon (if it occurs):
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4
Texture—channery or very channery analogs of silt loam or loam

Bw horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 6
Texture—very channery silt loam or very channery loam

C horizon (if it occurs):
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—4 to 6
Texture—extremely channery silt loam or extremely channery loam

Formation of the Soils

This section explains the origin and development of the soils in Morgan County. It describes the influence of the five factors of soil formation on the soils in the county. It also describes the morphology of the soils as it applies to horizon nomenclature and the geological characteristics of the county.

Factors of Soil Formation

The soils in Morgan County have resulted from the interaction of five major factors of soil formation—parent material, time, climate, living organisms, and topography (Jenny 1941). Each factor modifies the effect of the other factors. Parent material, topography, and time have produced the major differences among the soils in Morgan County. Climate and living organisms generally show their influence throughout broad areas.

Parent Material, Time, and Climate

The character of the parent material strongly influences the time required for soil formation and the nature of the soils produced. The soils in Morgan County formed in residuum, colluvium, or alluvium.

Most of the soils formed in residuum derived from limestone, shale, sandstone, or siltstone. Residuum is the oldest parent material in the county. Some of the soils that formed in residuum, such as those in the Caneyville series, show a high degree of development. Other soils are not so well developed because the soil-forming processes have been hindered by slope or by rock that is resistant to weathering. Dekalb soils, for example, formed in material weathered from hard sandstone and show a very limited degree of development.

The colluvium on footslopes and toeslopes and near the head of drainageways has moved downslope from soils formed in residuum. This material is younger than the residuum, but the soil-forming processes have had a considerable amount of time to act on the parent material. The resulting soils, such as those in the Buchanan series, are strongly leached and moderately well developed.

The alluvial parent material on terraces and flood plains has washed from upland soils that formed in residuum or colluvium. The soils on the terraces, such as those in the Monongahela series, are much older than the soils on the flood plains. They also are strongly leached and have a moderately well developed soil profile. The soils on the flood plains, such as those in the Pope series, are the youngest soils in the county. They exhibit a weakly developed profile.

Climate generally is relatively uniform throughout the county and is not responsible for any major differences among the soils. Rainfall and temperature, however, have had a general influence on the development of layers in the soil profile. The water from rainfall dissolves minerals, supports biological activity, and transports mineral and organic residue through the soil profile. Because more water enters the soil as precipitation than is lost through evaporation, the humid climate in the county has caused the soils to be leached. The temperature determines the type of physical, chemical, and biological activities that take place and the speed at which they act. A detailed description of the climate is given in the section “General Nature of the County.”

Living Organisms

Living organisms, including plants, animals, bacteria, fungi, and humans, affect soil formation. The kind and amount of vegetation generally are responsible for the amount of organic matter in the soil, the color of the surface layer, and, in part, the amount of nutrients in the soil. Earthworms and burrowing animals mix organic and mineral material by moving the soil to the surface and help to keep the soil open and porous. Bacteria and fungi decompose organic matter and can be instrumental in releasing nutrients for plant uptake. Humans influence the characteristics of the surface layer by clearing vegetation, plowing, or adding lime and fertilizer.

Topography

Topography affects soil formation through its effect on the amount of water moving through the soil, the amount and rate of runoff, and the rate of erosion. Large amounts of water have moved through gently sloping and strongly sloping soils. This movement of water favors the formation of moderately developed or well developed soils that are uniform in depth. On steep and very steep hillsides, less water moves through the profile and the amount and rate of runoff are greater. Also, the soil material may be washed away almost as rapidly as a soil forms. Thus, it is likely that some of the steeper soils will be more shallow over bedrock and less developed than the soils on the more gentle slopes.

The topography in the county favors the formation of soils on flood plains and terraces. Soil formation is progressing at a rapid rate; however, soils on the flood plains are young and weakly developed, mainly because too little time has elapsed since the material was deposited.

Morphology of the Soils

Soils are formed as a result of the physical weathering of parent rock, the chemical weathering of rock fragments and organic matter, the transfer of materials within the soil profile, and the gains and losses of organic matter and minerals. The results of these soil-forming processes are evident in the different layers, or horizons, in the soil profile (fig. 26). The profile extends from the surface downward to material that is little changed by the soil-forming processes. The layers include the O, A, E, B, and C horizons.

The O horizon is a very dark organic layer. It may overlie either mineral or organic soils. Soils that have an O horizon are almost exclusively in forested areas of the county. The O horizon mainly is undecomposed or partially decomposed hardwood leaf litter. It is quickly destroyed by such activities as land clearing and plowing.

The A horizon is a mineral surface layer that has been darkened by the accumulation of organic matter. It becomes darker as the organic matter accumulates.

The E horizon underlies the A or O horizon and is a light-colored mineral layer. It is the horizon of maximum leaching, or eluviation, of clay, iron, and aluminum. In areas that have been farmed, the E horizon commonly is no longer evident because it has been mixed with the A horizon when the soil was plowed.

The B horizon underlies the A, E, or O horizon and is commonly called the subsoil. It is the horizon of maximum accumulation, or illuviation, of clay, iron, aluminum, and other compounds leached from the E horizon. It generally has blocky structure and is firmer and lighter in color than the overlying horizons.

The C horizon is commonly called the substratum. It consists of material that has been modified by weathering but has been altered little by the soil-forming processes. It generally is structureless and contains few, if any, roots.

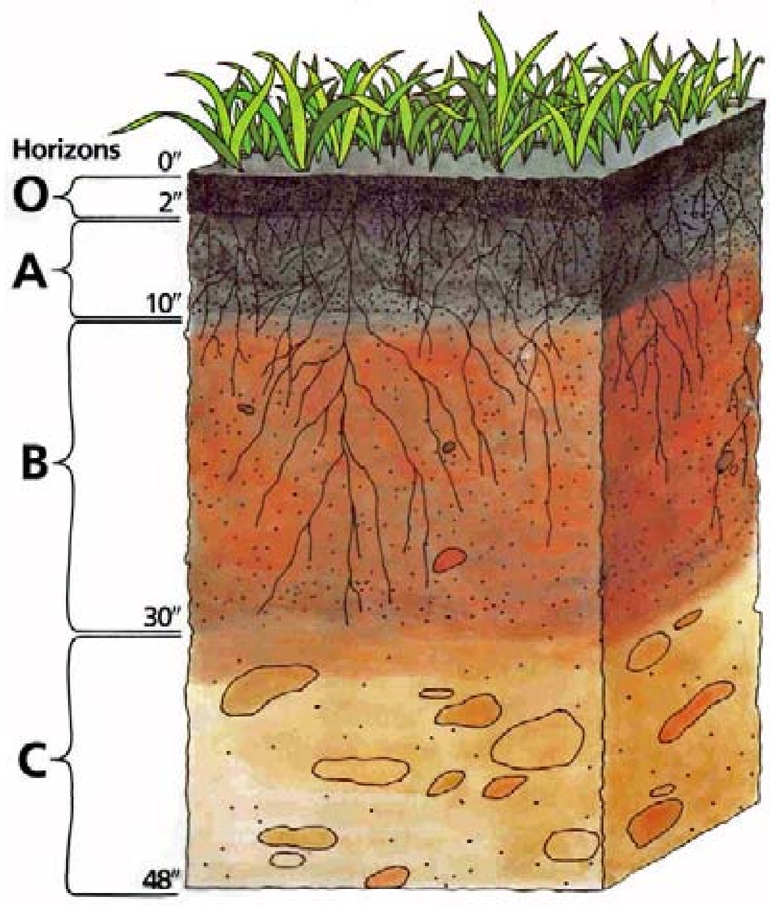

Figure 26.—This diagram shows four of the different horizons that may be included in a soil profile.

In Morgan County many processes have been involved in the formation of soil horizons. The more important of these are the accumulation of organic matter, the reduction and transfer of iron, the formation and translocation of clay minerals, and the formation of soil structure. These processes are continuous and have been taking place for thousands of years.

Most of the well drained soils on uplands in the county have a yellowish brown to reddish brown B horizon. These colors are caused mainly by the presence of iron oxides. The B horizon in these soils has blocky structure.

A fragipan has formed in the B horizon of many of the soils on footslopes and terraces. This layer is dense and brittle, mottled in color, and moderately slowly permeable or slowly permeable to water and air.

Some of the soils in the county have gray colors that are the result of gleying, or the reduction of iron, during soil formation. These soils are moderately well drained, somewhat poorly drained, poorly drained, or very poorly drained.

Geology

Craig E. Savela, staff geologist, Natural Resources Conservation Service, helped to prepare this section.

The landforms of Morgan County clearly show the effects of uplift, folding, and geologic erosion. The relative resistance of various rocks to erosion and folding has affected the topography of the county (fig. 27). Ridgetops formed in areas of resistant sandstone, and valleys formed mainly in areas of softer, erosive shale and limestone. The parallel ridges and valleys are oriented in a northeast-southwest direction. Outcrops of rocks also follow this orientation.

The county lies entirely within the Northern Appalachian Ridges and Valleys resource area. The bedrock is steeply folded and highly faulted. A system of generally parallel streams drains the county northward to the Potomac River. The exposed rocks in the county are all sedimentary in origin and belong to the Mississippian, Devonian, and Silurian Systems (Grimsley 1916).

Sandstone, shale, siltstone, and limestone are the common types of rock. Most of the soils in the county formed in material weathered from these rocks.

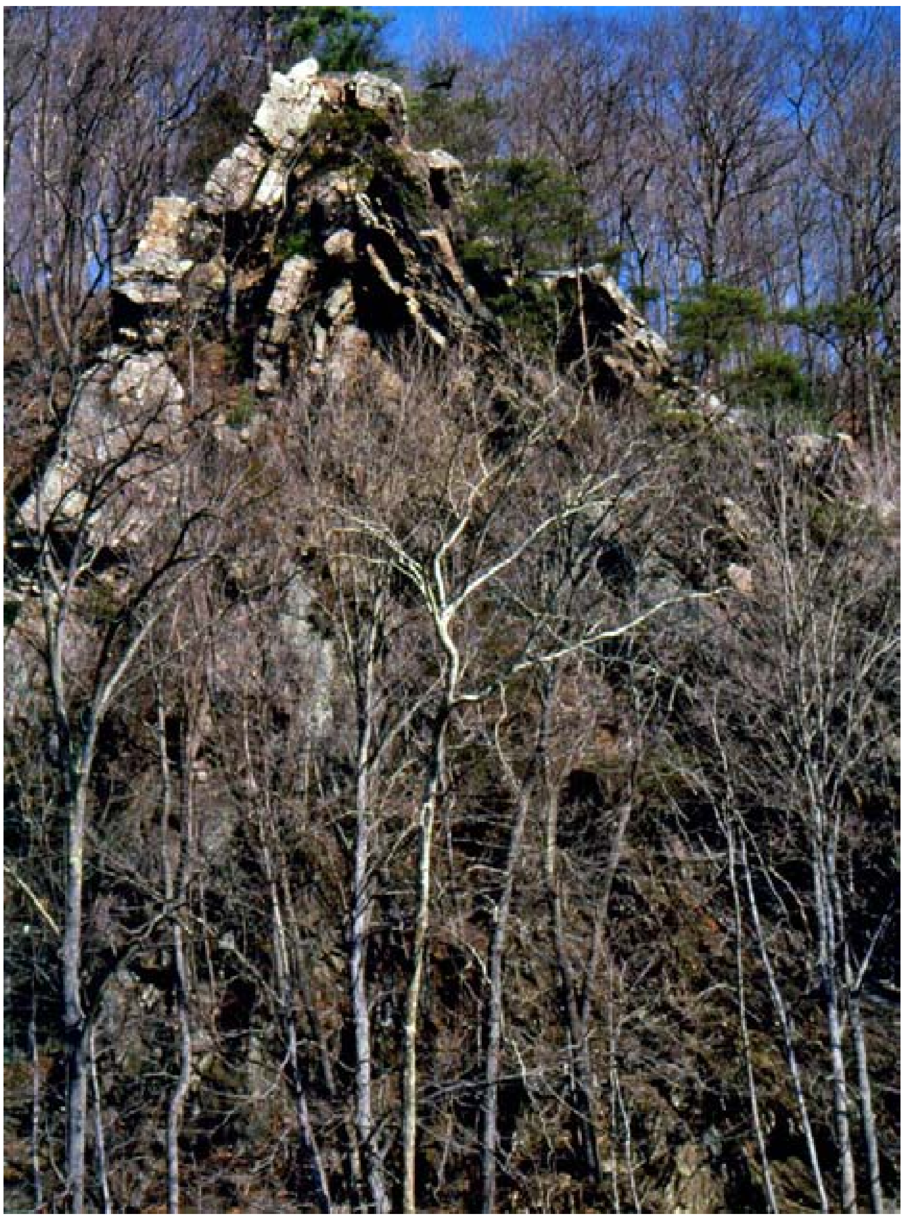

Figure 27.—An anticline along the Cacapon River near the town of Great Cacapon. Known locally as "Fluted Rocks," it is an example of the steep folding of bedrock geology in Morgan County.

The youngest rocks in the county are Pocono Group Sandstones, which are members of the Mississippian System. They are exposed along the crests of Sleepy Creek, Sideling Hill, and Purslane Mountains.

The oldest rocks in the county are Tuscarora Sandstones, which are of Silurian age. The Tuscarora Sandstones have been folded into a well defined anticline that forms Cacapon Mountain. Dekalb and Hazleton soils dominate the landscape in areas where these sandstones are exposed. Rock outcrops and cliffs are common, and the soil surface is often nearly covered by loose stones and boulders.

Rocks of the Devonian System are extensive in the Sleepy Creek drainage area and are also exposed in wide bands east and west of Sideling Hill. They include the shales, siltstones, and fine grained sandstones of the Hampshire Formation, Chemung Group, and Braillier and Mahantango Formations. The major soils that formed in material weathered from these rocks are those in the Calvin, Klinesville, Berks, and Weikert series.

Oriskany Sandstone, which is in the lower part of the Devonian System, outcrops on the crests and eastern flanks of Warm Springs Ridge, Tonoloway Ridge, and Little Mountain. On Warm Springs Ridge, north of Berkeley Springs, Oriskany Sandstone weathers to nearly pure sand and is extensively quarried for glass sand. It weathers to form Schaffenaker and Vanderlip soils on Warm Springs Ridge; however, Dekalb and Hazleton soils dominate the landscape on the crests of Tonoloway Ridge and Little Mountain.

Helderberg Limestone, which is part of the Devonian System, and the underlying Tonoloway Limestone, which is of Silurian age, outcrop on the western flank of Warm Springs Ridge and on the eastern flank of Tonoloway Ridge and Little Mountain. Where they are exposed, they weather to form Caneyville soils; however, in most areas these rocks are covered by colluvium from the acid sandstones that outcrop above them. This colluvium weathers to form Murrill and Blackthorn soils.

The Wills Creek and McKenzie Formations, which are of Silurian age, are exposed in the Sir Johns Run watershed and, to a lesser extent, along the western footslope of Cacapon Mountain. They consist of interbedded limestone, limy shales, acid shale, and sandstone. The soils formed in materials weathered from these rocks are members of the Litz series.

References

American Association of State Highway and Transportation Officials (AASHTO). 1998. Standard specifications for transportation materials and methods of sampling and testing. 19th edition, 2 volumes.

American Society for Testing and Materials (ASTM). 1998. Standard classification of soils for engineering purposes. ASTM Standard D 2487.

Austin, Morris E. 1965. Land resource regions and major land resource areas of the United States. U.S. Department of Agriculture Handbook 296. (Revised 1981)

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. February 24, 1995. Hydric soils of the United States.

Grimsley, G.P. 1916. West Virginia geological survey: Jefferson, Berkeley, and Morgan Counties.

Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. Version 4.0, 1998. Field indicators of hydric soils in the United States.

Jenny, Hans. 1941. Factors of soil formation.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

North, E. Lee. 1998. The 55 West Virginias: A guide to the state’s counties.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1998. Keys to soil taxonomy. 8th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, National Agricultural Statistics Service. 1999. 1997 census of agriculture, West Virginia state and county data. Volume 1, Part 48.

United States Department of Agriculture, Soil Conservation Service. 1978. Soil survey of Hampshire, Mineral, and Morgan Counties, West Virginia.

United States Department of Commerce, Bureau of the Census. n.d. State and county quickfacts. <http://quickfacts.census.gov/qfd/state/54/54065.html> (March 26, 2003).

United States Department of Commerce, Bureau of the Census. 1989. 1987 census of agriculture, West Virginia state and county data. Volume 1, Part 48.

West Virginia Division of Natural Resources. n.d. Berkeley Springs State Park history. <http://www.berkeleyspringsssp.com/history.html> (March 26, 2003).

Glossary

ABC soil. A soil having an A, a B, and a C horizon.
Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.
AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.
Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.
Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.
Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.
Alluvial cone. The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.
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.
Arroyo. The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.
Aspect. The direction in which a slope faces.
Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.
Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9

High .... 9 to 12
Very high .... more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.
Bajada. A broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate alluvial fans.
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.
Basal till. Compact glacial till deposited beneath the ice.
Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).
Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.
Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.
Bottom land. The normal flood plain of a stream, subject to flooding.
Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.
Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.
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.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche. A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath the solum, or it is exposed at the surface by erosion.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

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.

Catsteps. Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque. A semicircular, concave, bowllike area that has steep faces primarily resulting from glacial ice and snow abrasion.

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.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

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.

Congeliturbate. Soil material disturbed by frost action.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coppice dune. A small dune of fine grained soil material stabilized around shrubs or small trees.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

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.

Cuesta. A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.

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.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

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.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian 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.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

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.

Esker. A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the Earth's surface.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine earth. That portion of the soil consisting of particles less than 2 millimeters in diameter. Particles and rock fragments 2 millimeters in diameter or larger are not included.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. 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.

Flood plain. 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.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

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.

Gilgai. Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A 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.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head out. To form a flower head.

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.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A 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.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. 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.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. 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.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. An irregular, short ridge or hill of stratified glacial drift.

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.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

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.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by 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.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

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.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. 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.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

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

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Pebble. A rounded or angular fragment of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. A collection of pebbles is referred to as gravel.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permafrost. Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

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.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

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.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Red beds. Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations. 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.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

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.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, 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.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. 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.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 3 percent
Gently sloping	3 to 8 percent
Strongly sloping	8 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

Sloughed till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the Earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief 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.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

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."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

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.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the Earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Cacapon State Park, West Virginia.)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature 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--	38.2	20.1	29.2	66	-8	23	2.61	1.14	3.91	5	7.9
February-	42.7	23.0	32.9	72	0	45	2.17	.93	3.10	5	6.7
March----	51.7	30.1	40.9	82	8	141	3.16	1.91	4.26	7	4.8
April----	63.2	40.0	51.6	88	22	352	3.04	1.68	4.30	6	.2
May------	72.8	49.7	61.2	91	32	650	3.80	1.92	5.48	7	.0
June-----	81.0	57.6	69.3	95	41	875	3.82	2.37	5.00	6	.0
July-----	85.2	62.6	73.9	98	47	1,040	4.19	2.25	6.20	7	.0
August---	83.6	60.4	72.0	97	43	984	3.74	2.16	5.16	6	.0
September	76.2	52.8	64.5	93	35	725	3.44	1.72	4.74	5	.0
October--	65.2	41.2	53.2	85	25	410	3.25	1.10	5.06	5	.0
November-	54.1	33.8	43.9	78	14	174	3.02	1.52	4.44	5	.8
December-	42.5	24.5	33.5	68	2	45	2.43	1.04	3.67	4	2.3
Yearly:											
Average-	63.0	41.3	52.2	---	---	---	---	---	---	---	---
Extreme-	---	---	---	99	-10	---	---	---	---	---	---
Total---	---	---	---	---	---	5,463	38.66	29.63	44.09	68	22.7

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Cacapon State Park, West Virginia.)

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 10	Apr. 20	May 5
2 years in 10 later than--	Apr. 6	Apr. 16	Apr. 30
5 years in 10 later than--	Mar. 28	Apr. 9	Apr. 21
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 24	Oct. 7	Sept. 30
2 years in 10 earlier than--	Oct. 30	Oct. 13	Oct. 5
5 years in 10 earlier than--	Nov. 11	Oct. 24	Oct. 15

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Cacapon State Park, West Virginia.)

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	205	178	155
8 years in 10	213	184	163
5 years in 10	229	197	177
2 years in 10	245	210	192
1 year in 10	253	217	199

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AgB	Allegheny loam, 3 to 8 percent slopes	79	*
AgC	Allegheny loam, 8 to 15 percent slopes	519	0.4
AnB	Andover gravelly loam, 3 to 8 percent slopes	47	*
Ba	Basher fine sandy loam	465	0.3
BbC	Berks channery loam, 3 to 15 percent slopes, very stony	576	0.4
BbE	Berks channery loam, 15 to 35 percent slopes, very stony	773	0.5
BcD	Berks-Calvin channery loams, 15 to 25 percent slopes	2,948	2.0
BcE	Berks-Calvin channery loams, 25 to 35 percent slopes	1,476	1.0
BcF	Berks-Calvin channery loams, 35 to 65 percent slopes	663	0.5
BeB	Berks-Clearbrook channery silt loams, 3 to 8 percent slopes	445	0.3
BeC	Berks-Clearbrook channery silt loams, 8 to 15 percent slopes	1,011	0.7
BkB	Berks-Weikert channery silt loams, 3 to 8 percent slopes	3,714	2.5
BqF	Blackthorn very gravelly sandy loam, 35 to 55 percent slopes, rubbly	398	0.3
BrB	Brinkerton silt loam, 3 to 8 percent slopes	72	*
BuB	Buchanan gravelly loam, 3 to 8 percent slopes	75	*
BuC	Buchanan gravelly loam, 8 to 15 percent slopes	465	0.3
BxC	Buchanan loam, 3 to 15 percent slopes, extremely stony	3,740	2.5
BxE	Buchanan loam, 15 to 35 percent slopes, extremely stony	3,251	2.2
CbB	Calvin-Berks channery loams, 3 to 8 percent slopes	50	*
CbC	Calvin-Berks channery loams, 8 to 15 percent slopes	1,782	1.2
CkB	Calvin-Klinesville channery loams, 3 to 8 percent slopes	410	0.3
CkC	Calvin-Klinesville channery loams, 8 to 15 percent slopes	6,634	4.5
CkD	Calvin-Klinesville channery loams, 15 to 25 percent slopes	6,259	4.3
CkE	Calvin-Klinesville channery loams, 25 to 35 percent slopes	5,050	3.4
CkF	Calvin-Klinesville channery loams, 35 to 65 percent slopes	5,231	3.6
ClC	Caneyville silt loam, 8 to 15 percent slopes	10	*
ClD	Caneyville silt loam, 15 to 25 percent slopes	27	*
ClE	Caneyville silt loam, 25 to 35 percent slopes	171	0.1
CnF	Caneyville silty clay loam, 35 to 65 percent slopes	47	*
CrB	Clarksburg gravelly silt loam, 3 to 8 percent slopes	50	*
CrC	Clarksburg gravelly silt loam, 8 to 15 percent slopes	145	*
CvB	Clearbrook-Cavode silt loams, 0 to 8 percent slopes	991	0.7
Cz	Combs fine sandy loam	1,352	0.9
DkC	Dekalb channery sandy loam, 3 to 15 percent slopes, extremely stony	905	0.6
DrE	Dekalb-Rock outcrop complex, 15 to 25 percent slopes, rubbly	1,076	0.7
DsB	Downsville gravelly loam, 3 to 8 percent slopes	179	0.1
DsC	Downsville gravelly loam, 8 to 15 percent slopes	202	0.1
Dz	Dunning silty clay loam	114	*
ErB	Ernest silt loam, 3 to 8 percent slopes	203	0.1
ErC	Ernest silt loam, 8 to 15 percent slopes	708	0.5
HaE	Hazleton-Dekalb complex, 15 to 35 percent slopes, extremely stony	1,408	1.0
HaF	Hazleton-Dekalb complex, 35 to 65 percent slopes, extremely stony	1,439	1.0
HdF	Hazleton-Dekalb-Rock outcrop complex, 35 to 65 percent slopes, rubbly	2,750	1.9
HeF	Hazleton-Dekalb-Rock outcrop complex, 35 to 65 percent slopes, very rubbly	2,240	1.5
HlF	Hazleton-Lehew-Dekalb complex, 35 to 65 percent slopes, extremely stony	4,617	3.1
Ho	Holly silt loam	1,318	0.9
HwB	Hustontown silt loam, 3 to 8 percent slopes	160	0.1
Ln	Lindside silt loam	927	0.6
LzC	Litz channery silt loam, 8 to 15 percent slopes	344	0.2
LzD	Litz channery silt loam, 15 to 25 percent slopes	634	0.4
LzE	Litz channery silt loam, 25 to 35 percent slopes	150	0.1
LzF	Litz channery silt loam, 35 to 65 percent slopes	582	0.4
Me	Melvin silt loam	658	0.4
MhA	Monongahela silt loam, 0 to 3 percent slopes	113	*
MhB	Monongahela silt loam, 3 to 8 percent slopes	1,855	1.3
MhC	Monongahela silt loam, 8 to 15 percent slopes	1,864	1.3
MrC	Murrill gravelly loam, 8 to 15 percent slopes	143	*
MrD	Murrill gravelly loam, 15 to 25 percent slopes	52	*
MsC	Murrill loam, 3 to 15 percent slopes, extremely stony	586	0.4
MsE	Murrill loam, 15 to 35 percent slopes, extremely stony	1,186	0.8
Pg	Philo gravelly loam	342	0.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
Ph	Philo silt loam	1,502	1.0
Ps	Pope fine sandy loam	484	0.3
Px	Pope silt loam	125	*
Pz	Pope-Philo fine sandy loams	1,024	0.7
Qm	Quarry, limestone	6	*
Qo	Quarry, sandstone	171	0.1
Qs	Quarry, shale	2	*
ReG	Rock outcrop-Opequon complex, 55 to 100 percent slopes	158	0.1
RgG	Rock outcrop-Rough complex, 55 to 100 percent slopes	897	0.6
RuD	Rushtown channery silt loam, 8 to 25 percent slopes	21	*
RuF	Rushtown channery silt loam, 35 to 65 percent slopes	65	*
ShC	Schaffenaker loamy sand, 3 to 15 percent slopes, very bouldery	34	*
SkF	Schaffenaker-Rock outcrop complex, 35 to 65 percent slopes, rubbly	413	0.3
SnE	Schaffenaker-Vanderlip loamy sands, 15 to 35 percent slopes, very bouldery	82	*
SnF	Schaffenaker-Vanderlip loamy sands, 35 to 65 percent slopes, very bouldery	683	0.5
SxC	Sideling gravelly loam, 3 to 15 percent slopes, extremely stony	1,299	0.9
SxE	Sideling gravelly loam, 15 to 35 percent slopes, extremely stony	9,008	6.1
SyE	Sideling gravelly loam, 15 to 35 percent slopes, rubbly	1,584	1.1
Ta	Tioga fine sandy loam	777	0.5
TyA	Tygart silt loam, 0 to 3 percent slopes	387	0.3
Ua	Udorthents, smoothed	622	0.4
Uu	Urban land-Udorthents complex, 0 to 25 percent slopes	339	0.2
W	Water	714	0.5
WaB	Weikert channery silt loam, 3 to 8 percent slopes	131	*
WaC	Weikert channery silt loam, 8 to 15 percent slopes	1,583	1.1
WbC	Weikert-Berks channery silt loams, 8 to 15 percent slopes	9,854	6.7
WbD	Weikert-Berks channery silt loams, 15 to 25 percent slopes	16,307	11.1
WkF	Weikert-Berks very channery silt loams, 25 to 70 percent slopes	23,047	15.7
	Total	147,000	100.0

* Less than 0.1 percent. The combined extent of the soils assigned an asterisk in the "Percent" column is about 1.2 percent of the survey area.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
		Tons	Bu	Tons	AUM	Bu
AgB:						
Allegheny	2e	5.00	115	3.50	7.00	50
AgC:						
Allegheny	3e	4.50	105	3.00	7.00	45
AnB:						
Andover	4w	---	85	2.50	5.00	30
Ba:						
Basher	2w	4.50	120	3.50	8.50	50
BbC:						
Berks	6s	---	---	---	4.50	---
BbE:						
Berks	7s	---	---	---	---	---
BcD		3.00	70	2.50	5.50	30
Berks	4e					
Calvin	4e					
BcE		---	---	---	4.50	---
Berks	6e					
Calvin	6e					
BcF		---	---	---	---	---
Berks	7e					
Calvin	7e					
BeB		---	70	3.00	5.50	30
Berks	2e					
Clearbrook	2e					
BeC		---	65	2.50	5.00	25
Berks	3e					
Clearbrook	3e					
BkB		3.00	70	2.50	5.00	30
Berks	3e					
Weikert	3e					
BqF:						
Blackthorn	7s	---	---	---	---	---
BrB:						
Brinkerton	4w	---	90	2.50	5.00	40
BuB:						
Buchanan	2e	3.50	100	3.00	6.50	45
BuC:						
Buchanan	3e	3.50	90	3.00	5.50	40
BxC:						
Buchanan	7s	---	---	---	---	---
BxE:						
Buchanan	7s	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
		Tons	Bu	Tons	AUM	Bu
CbB		3.50	80	3.00	6.50	35
Calvin	2e					
Berks	2e					
CbC		3.50	75	2.50	6.00	30
Calvin	3e					
Berks	3e					
CkB		3.50	75	2.50	6.00	30
Calvin	3e					
Klinesville	3e					
CkC		3.00	70	2.00	5.50	30
Calvin	4e					
Klinesville	4e					
CkD		2.50	60	2.00	5.00	25
Calvin	6e					
Klinesville	6e					
CkE		---	---	---	4.50	---
Calvin	7e					
Klinesville	7e					
CkF		---	---	---	---	---
Calvin	7e					
Klinesville	7e					
ClC:						
Caneyville	4e	3.50	85	3.00	6.50	40
ClD:						
Caneyville	6e	3.00	75	2.50	5.50	35
ClE:						
Caneyville	7e	---	---	---	4.50	---
CnF:						
Caneyville	7e	---	---	---	---	---
CrB:						
Clarksburg	2e	3.50	100	3.00	6.50	40
CrC:						
Clarksburg	3e	3.50	90	3.00	6.50	40
CvB		---	80	3.00	6.50	35
Clearbrook	3w					
Cavode	3w					
Cz:						
Combs	2w	5.50	135	4.50	8.50	60
DkC:						
Dekalb	7s	---	---	---	---	---
DrE		---	---	---	---	---
Dekalb	7s					
Rock outcrop	8s					
DsB:						
Downsville	2e	5.00	115	3.50	7.00	50

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
		Tons	Bu	Tons	AUM	Bu
DsC:						
Downsville	3e	4.50	105	3.00	7.00	45
Dz:						
Dunning	4w	---	100	3.00	7.00	30
ErB:						
Ernest	2e	3.00	100	3.00	6.50	45
ErC:						
Ernest	3e	3.00	90	3.00	6.50	40
HaE		---	---	---	---	---
Hazleton	7s					
Dekalb	7s					
HaF		---	---	---	---	---
Hazleton	7s					
Dekalb	7s					
HdF		---	---	---	---	---
Hazleton	7s					
Dekalb	7s					
Rock outcrop	8s					
HeF		---	---	---	---	---
Hazleton	8s					
Dekalb	8s					
Rock outcrop	8s					
HlF		---	---	---	---	---
Hazleton	7s					
Lehew	7s					
Dekalb	7s					
Ho:						
Holly	3w	---	100	3.00	5.50	45
HwB:						
Hustontown	2e	3.00	100	3.00	6.50	45
Ln:						
Lindside	2w	4.50	120	3.50	---	55
LzC:						
Litz	3e	3.50	80	3.00	6.50	35
LzD:						
Litz	4e	3.00	70	2.50	5.50	30
LzE:						
Litz	6e	---	---	---	4.50	---
LzF:						
Litz	7e	---	---	---	---	---
Me:						
Melvin	3w	---	115	3.00	6.00	50
MhA:						
Monongahela	2w	3.50	110	3.00	6.50	40

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
		Tons	Bu	Tons	AUM	Bu
MhB:						
Monongahela	2e	3.50	100	3.00	6.50	40
MhC:						
Monongahela	3e	3.00	90	3.00	6.50	35
MrC:						
Murrill	3e	4.00	110	3.00	7.50	40
MrD:						
Murrill	4e	4.00	95	3.00	7.00	35
MsC:						
Murrill	6s	---	---	---	6.50	---
MsE:						
Murrill	7s	---	---	---	---	---
Pg:						
Philo	2w	3.50	115	3.00	7.50	50
Ph:						
Philo	2w	4.50	130	3.50	7.50	60
Ps:						
Pope	2w	4.50	125	3.50	8.00	55
Px:						
Pope	2w	5.00	130	4.00	8.00	60
Pz		---	---	---	7.00	---
Pope	5w					
Philo	5w					
Qm:						
Quarry, limestone.						
Qo:						
Quarry, sandstone.						
Qs:						
Quarry, shale.						
ReG		---	---	---	---	---
Rock outcrop	8s					
Opequon	8s					
RgG		---	---	---	---	---
Rock outcrop	8s					
Rough	8s					
RuD:						
Rushtown	6e	---	---	---	5.00	---
RuF:						
Rushtown	7e	---	---	---	---	---
ShC:						
Schaffenaker	7s	---	---	---	---	---
SkF		---	---	---	---	---
Schaffenaker	8s					
Rock outcrop	8s					

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Grass-legume hay	Pasture	Wheat
		Tons	Bu	Tons	AUM	Bu
SnE----------------------		---	---	---	---	---
Schaffenaker------------	7s					
Vanderlip---------------	7s					
SnF----------------------		---	---	---	---	---
Schaffenaker------------	7s					
Vanderlip---------------	7s					
SxC:						
Sideling----------------	6s	---	---	---	5.00	---
SxE:						
Sideling----------------	7s	---	---	---	---	---
SyE:						
Sideling----------------	7s	---	---	---	---	---
Ta:						
Tioga-------------------	2w	5.50	135	4.50	8.50	60
TyA:						
Tygart------------------	3w	---	95	3.00	5.50	45
Ua:						
Udorthents.						
Uu:						
Urban land.						
Udorthents.						
WaB:						
Weikert-----------------	3e	2.00	60	2.50	3.50	25
WaC:						
Weikert-----------------	4e	2.00	55	2.00	3.00	20
WbC----------------------		2.50	65	2.50	4.50	25
Weikert-----------------	4e					
Berks-------------------	4e					
WbD----------------------		---	---	---	3.50	---
Weikert-----------------	6e					
Berks-------------------	6e					
WkF----------------------		---	---	---	---	---
Weikert-----------------	7e					
Berks-------------------	7e					

Table 6.--Acreage by Capability Class and Subclass

Capability class	Capability subclass	Acreage
Unclassified	---	1,854
2	e	3,096
2	w	6,087
3	e	11,438
3	w	3,354
4	e	21,715
4	w	233
5	w	1,024
6	e	24,240
6	s	2,461
7	e	34,856
7	s	32,934
8	s	3,708

Table 7.--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	Soil name
AgB	Allegheny loam, 3 to 8 percent slopes
Ba	Basher fine sandy loam
BuB	Buchanan gravelly loam, 3 to 8 percent slopes
CrB	Clarksburg gravelly silt loam, 3 to 8 percent slopes
Cz	Combs fine sandy loam
DsB	Downsville gravelly loam, 3 to 8 percent slopes
HwB	Hustontown silt loam, 3 to 8 percent slopes
Ln	Lindside silt loam
MhA	Monongahela silt loam, 0 to 3 percent slopes
Pg	Philo gravelly loam
Ph	Philo silt loam
Ps	Pope fine sandy loam
Px	Pope silt loam
Ta	Tioga fine sandy loam

Table 8a.--Agricultural Waste Management (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
AgB:							
Allegheny	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.68
						Too acid	0.07
AgC:							
Allegheny	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.02	Too acid	0.07	Too steep for surface application	0.68
						Too acid	0.07
AnB:							
Andover	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Too acid	0.50	Too acid	1.00	Too acid	1.00
		Runoff	0.40			Too steep for surface application	0.08
Ba:							
Basher	75	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	Flooding	1.00	Flooding	0.60
		Too acid	0.02	Too acid	0.07	Too acid	0.07
BbC:							
Berks	80	Very limited		Very limited		Very limited	
		Droughty	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Droughty	1.00
		Too acid	0.94	Droughty	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Filtering capacity	1.00	Filtering capacity	1.00
		Too stony	0.53	Depth to bedrock	0.90	Depth to bedrock	0.90
BbE:							
Berks	75	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Droughty	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.94	Droughty	1.00	Droughty	1.00
		Depth to bedrock	0.90	Filtering capacity	1.00	Filtering capacity	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
BcD:							
Berks	45	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.95	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.01	Depth to bedrock	0.95	Depth to bedrock	0.95
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.80	Droughty	1.00	Droughty	1.00
		Too acid	0.32	Too acid	0.91	Too acid	0.91
		Filtering capacity	0.01	Depth to bedrock	0.80	Depth to bedrock	0.80
BcE:							
Berks	50	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.95	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.01	Depth to bedrock	0.95	Depth to bedrock	0.95
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.80	Droughty	1.00	Droughty	1.00
		Too acid	0.32	Too acid	0.91	Too acid	0.91
		Filtering capacity	0.01	Depth to bedrock	0.80	Depth to bedrock	0.80
BcF:							
Berks	50	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.95	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.01	Depth to bedrock	0.95	Depth to bedrock	0.95

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BcF:							
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.80	Droughty	1.00	Droughty	1.00
		Too acid	0.32	Too acid	0.91	Too acid	0.91
		Filtering capacity	0.01	Depth to bedrock	0.80	Depth to bedrock	0.80
BeB:							
Berks	50	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	0.84	Low adsorption	1.00	Too acid	1.00
		Too acid	0.73	Too acid	1.00	Depth to bedrock	0.84
		Filtering capacity	0.01	Depth to bedrock	0.84	Too steep for surface application	0.68
				Filtering capacity	0.01	Filtering capacity	0.01
Clearbrook	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Droughty	1.00	Droughty	1.00
		Droughty	0.97	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	0.97	Low adsorption	1.00	Depth to bedrock	0.97
		Restricted permeability	0.41	Depth to bedrock	0.97	Too acid	0.77
		Runoff	0.40	Too acid	0.77	Too steep for surface application	0.68
BeC:							
Berks	55	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	0.84	Low adsorption	1.00	Too steep for surface application	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Slope	0.63	Depth to bedrock	0.84	Depth to bedrock	0.84
		Filtering capacity	0.01	Slope	0.63	Too steep for sprinkler application	0.78
Clearbrook	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	0.97	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	0.63	Depth to bedrock	0.97	Depth to bedrock	0.97
		Restricted permeability	0.41	Too acid	0.77	Too steep for sprinkler application	0.78

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BkB:							
Berks	45	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	0.84	Low adsorption	1.00	Too acid	1.00
		Too acid	0.73	Too acid	1.00	Depth to bedrock	0.84
		Filtering capacity	0.01	Depth to bedrock	0.84	Too steep for surface application	0.68
				Filtering capacity	0.01	Filtering capacity	0.01
Weikert	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	0.73	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	0.01	Too acid	1.00	Too steep for surface application	0.68
				Filtering capacity	0.01	Filtering capacity	0.01
BqF:							
Blackthorn	80	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.94	Filtering capacity	1.00	Filtering capacity	1.00
BrB:							
Brinkerton	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff	0.40	Too acid	0.91	Too acid	0.91
		Too acid	0.32			Too steep for surface application	0.68
BuB:							
Buchanan	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to saturated zone	1.00	Too acid	1.00	Too acid	1.00
		Too acid	0.62	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Too steep for surface application	0.68

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
BuC:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Too acid	1.00	Restricted permeability	1.00
		Slope	0.63	Depth to saturated zone	1.00	Too acid	1.00
		Too acid	0.62	Slope	0.63	Depth to saturated zone	1.00
						Too steep for sprinkler application	0.78
BxC:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Low adsorption	1.00	Too acid	1.00
		Restricted permeability	1.00	Too acid	1.00	Restricted permeability	1.00
		Large stones on the surface	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Depth to saturated zone	1.00	Filtering capacity	1.00	Filtering capacity	1.00
BxE:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Restricted permeability	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Large stones on the surface	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
CbB:							
Calvin--------------	55	Very limited		Very limited		Very limited	
		Droughty	1.00	Low adsorption	1.00	Droughty	1.00
		Depth to bedrock	0.80	Droughty	1.00	Too acid	0.91
		Too acid	0.32	Too acid	0.91	Depth to bedrock	0.80
		Filtering capacity	0.01	Depth to bedrock	0.80	Too steep for surface application	0.68
				Filtering capacity	0.01	Filtering capacity	0.01
Berks---------------	35	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	0.95	Low adsorption	1.00	Too acid	1.00
		Too acid	0.73	Too acid	1.00	Depth to bedrock	0.95
		Filtering capacity	0.01	Depth to bedrock	0.95	Too steep for surface application	0.68
				Filtering capacity	0.01	Filtering capacity	0.01

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CbC:							
Calvin	50	Very limited Droughty Depth to bedrock Slope Too acid Filtering capacity	 1.00 0.80 0.63 0.32 0.01	Very limited Low adsorption Droughty Too acid Depth to bedrock Slope	 1.00 1.00 0.91 0.80 0.63	Very limited Too steep for surface application Droughty Too acid Depth to bedrock Too steep for sprinkler application	 1.00 1.00 0.91 0.80 0.78
Berks	35	Very limited Droughty Depth to bedrock Too acid Slope Filtering capacity	 1.00 0.95 0.73 0.63 0.01	Very limited Droughty Low adsorption Too acid Depth to bedrock Slope	 1.00 1.00 1.00 0.95 0.63	Very limited Droughty Too steep for surface application Too acid Depth to bedrock Too steep for sprinkler application	 1.00 1.00 1.00 0.95 0.78
CkB:							
Calvin	65	Very limited Droughty Depth to bedrock Too acid Filtering capacity	 1.00 0.80 0.32 0.01	Very limited Low adsorption Droughty Too acid Depth to bedrock Filtering capacity	 1.00 1.00 0.91 0.80 0.01	Very limited Droughty Too acid Depth to bedrock Too steep for surface application Filtering capacity	 1.00 0.91 0.80 0.68 0.01
Klinesville	30	Very limited Depth to bedrock Droughty Too acid Filtering capacity	 1.00 1.00 0.32 0.01	Very limited Droughty Depth to bedrock Low adsorption Too acid Filtering capacity	 1.00 1.00 1.00 0.91 0.01	Very limited Droughty Depth to bedrock Too acid Too steep for surface application Filtering capacity	 1.00 1.00 0.91 0.68 0.01
CkC:							
Calvin	65	Very limited Droughty Depth to bedrock Slope Too acid Filtering capacity	 1.00 0.80 0.63 0.32 0.01	Very limited Low adsorption Droughty Too acid Depth to bedrock Slope	 1.00 1.00 0.91 0.80 0.63	Very limited Too steep for surface application Droughty Too acid Depth to bedrock Too steep for sprinkler application	 1.00 1.00 0.91 0.80 0.78

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
CkC:							
Klinesville---------	30	Very limited Depth to bedrock Droughty Slope Too acid Filtering capacity	 1.00 1.00 0.63 0.32 0.01	Very limited Droughty Depth to bedrock Low adsorption Too acid Slope	 1.00 1.00 1.00 0.91 0.63	Very limited Droughty Depth to bedrock Too steep for surface application Too acid Too steep for sprinkler application	 1.00 1.00 1.00 0.91 0.78
CkD:							
Calvin--------------	65	Very limited Slope Droughty Depth to bedrock Too acid Filtering capacity	 1.00 1.00 0.80 0.32 0.01	Very limited Low adsorption Slope Droughty Too acid Depth to bedrock	 1.00 1.00 1.00 0.91 0.80	Very limited Too steep for surface application Too steep for sprinkler application Droughty Too acid Depth to bedrock	 1.00 1.00 1.00 0.91 0.80
Klinesville---------	30	Very limited Slope Depth to bedrock Droughty Too acid Filtering capacity	 1.00 1.00 1.00 0.32 0.01	Very limited Droughty Depth to bedrock Low adsorption Slope Too acid	 1.00 1.00 1.00 1.00 0.91	Very limited Droughty Depth to bedrock Too steep for surface application Too steep for sprinkler application Too acid	 1.00 1.00 1.00 1.00 0.91
CkE:							
Calvin--------------	60	Very limited Slope Droughty Depth to bedrock Too acid Filtering capacity	 1.00 1.00 0.80 0.32 0.01	Very limited Low adsorption Slope Droughty Too acid Depth to bedrock	 1.00 1.00 1.00 0.91 0.80	Very limited Too steep for surface application Too steep for sprinkler application Droughty Too acid Depth to bedrock	 1.00 1.00 1.00 0.91 0.80
Klinesville---------	30	Very limited Slope Depth to bedrock Droughty Too acid Filtering capacity	 1.00 1.00 1.00 0.32 0.01	Very limited Droughty Depth to bedrock Low adsorption Slope Too acid	 1.00 1.00 1.00 1.00 0.91	Very limited Droughty Depth to bedrock Too steep for surface application Too steep for sprinkler application Too acid	 1.00 1.00 1.00 1.00 0.91

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
CkF:							
Calvin	45	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.80	Droughty	1.00	Droughty	1.00
		Too acid	0.32	Too acid	0.91	Too acid	0.91
		Filtering capacity	0.01	Depth to bedrock	0.80	Depth to bedrock	0.80
Klinesville	30	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Too acid	0.32	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	0.01	Too acid	0.91	Too acid	0.91
ClC:							
Caneyville	90	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.90	Low adsorption	1.00	Too steep for surface application	1.00
		Droughty	0.80	Depth to bedrock	0.90	Depth to bedrock	0.90
		Slope	0.63	Droughty	0.80	Droughty	0.80
		Restricted permeability	0.41	Slope	0.63	Too steep for sprinkler application	0.78
		Too acid	0.02	Restricted permeability	0.31	Restricted permeability	0.31
ClD:							
Caneyville	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.80	Depth to bedrock	0.90	Depth to bedrock	0.90
		Restricted permeability	0.41	Droughty	0.80	Droughty	0.80
		Too acid	0.02	Restricted permeability	0.31	Restricted permeability	0.31

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
ClE:							
Caneyville----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.80	Depth to bedrock	0.90	Depth to bedrock	0.90
		Restricted permeability	0.41	Droughty	0.80	Droughty	0.80
		Too acid	0.02	Restricted permeability	0.31	Restricted permeability	0.31
CnF:							
Caneyville----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.90	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.84	Depth to bedrock	0.90	Depth to bedrock	0.90
		Restricted permeability	0.41	Droughty	0.84	Droughty	0.84
		Too acid	0.02	Restricted permeability	0.31	Restricted permeability	0.31
CrB:							
Clarksburg----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.81	Restricted permeability	0.68	Too steep for surface application	0.68
		Too acid	0.11	Too acid	0.42	Restricted permeability	0.68
						Too acid	0.42
CrC:							
Clarksburg----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.81	Restricted permeability	0.68	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Too steep for sprinkler application	0.78
		Too acid	0.11	Too acid	0.42	Restricted permeability	0.68
						Too acid	0.42
CvB:							
Clearbrook----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Droughty	1.00	Low adsorption	1.00	Droughty	1.00
		Depth to bedrock	0.97	Droughty	1.00	Depth to bedrock	0.97
		Restricted permeability	0.41	Depth to bedrock	0.97	Too acid	0.77
		Runoff	0.40	Too acid	0.77	Restricted permeability	0.31

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
CvB:							
Cavode	35	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Low adsorption	1.00	Restricted permeability	1.00
		Too acid	0.50	Restricted permeability	1.00	Too acid	1.00
				Too acid	1.00	Too steep for surface application	0.08
Cz:							
Combs	85	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
DkC:							
Dekalb	85	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Too stony	1.00	Low adsorption	1.00	Too acid	1.00
		Droughty	1.00	Too acid	1.00	Droughty	1.00
		Large stones on the surface	1.00	Droughty	1.00	Too steep for surface application	1.00
		Cobble content	0.98	Large stones on the surface	1.00	Large stones on the surface	1.00
DrE:							
Dekalb	70	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
DsB:							
Downsville	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too acid	0.05	Too acid	0.21	Too steep for surface application	0.68
		Filtering capacity	0.01	Filtering capacity	0.01	Too acid	0.21
						Filtering capacity	0.01

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
DsC:							
Downsville----------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Too steep for surface application	1.00
		Too acid	0.05	Too acid	0.21	Too steep for sprinkler application	0.78
		Filtering capacity	0.01	Filtering capacity	0.01	Too acid	0.21
						Filtering capacity	0.01
Dz:							
Dunning-------------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		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
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Runoff	0.40				
ErB:							
Ernest--------------	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
		Restricted permeability	0.74	Too acid	0.91	Too acid	0.91
		Too acid	0.32	Restricted permeability	0.60	Too steep for surface application	0.68
						Restricted permeability	0.60
ErC:							
Ernest--------------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.74	Too acid	0.91	Too steep for surface application	1.00
		Slope	0.63	Slope	0.63	Too acid	0.91
		Too acid	0.32	Restricted permeability	0.60	Too steep for sprinkler application	0.78
						Restricted permeability	0.60
HaE:							
Hazleton------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Large stones on the surface	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Cobble content	0.98	Filtering capacity	1.00	Filtering capacity	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
HaE:							
Dekalb	40	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Large stones on the surface	1.00	Droughty	1.00	Droughty	1.00
HaF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Large stone on the surface	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Cobble content	0.98	Filtering capacity	1.00	Filtering capacity	1.00
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Large stones on the surface	1.00	Droughty	1.00	Droughty	1.00
HdF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Cobble content	0.98	Filtering capacity	1.00	Filtering capacity	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
HdF:							
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Cobble content	0.98	Filtering capacity	1.00	Filtering capacity	1.00
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Large stones on the surface	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Cobble content	0.98	Filtering capacity	1.00	Filtering capacity	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
HlF:							
Lehew	20	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Large stones on the surface	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Droughty	0.99	Filtering capacity	1.00	Filtering capacity	1.00
Dekalb	15	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Droughty	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Large stones on the surface	1.00	Droughty	1.00	Droughty	1.00
Ho:							
Holly	80	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
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Leaching	0.50				
HwB:							
Hustontown	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
		Restricted permeability	0.41	Too acid	0.42	Too steep for surface application	0.68
		Too acid	0.11	Restricted permeability	0.31	Too acid	0.42
						Restricted permeability	0.31
Ln:							
Lindside	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95
		Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LzC:							
Litz	90	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Too acid	0.94	Too acid	1.00	Too steep for surface application	1.00
		Droughty	0.74	Filtering capacity	1.00	Filtering capacity	1.00
		Slope	0.50	Droughty	0.74	Droughty	0.74
		Depth to bedrock	0.35	Slope	0.50	Too steep for sprinkler application	0.70
LzD:							
Litz	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.74	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to bedrock	0.35	Droughty	0.74	Droughty	0.74
LzE:							
Litz	80	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.74	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to bedrock	0.35	Droughty	0.74	Droughty	0.74
LzF:							
Litz	80	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00
		Droughty	0.74	Filtering capacity	1.00	Filtering capacity	1.00
		Depth to bedrock	0.35	Droughty	0.74	Droughty	0.74
Me:							
Melvin	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Leaching	0.70				

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
MhA:							
Monongahela---------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.74	Restricted permeability	0.60	Restricted permeability	0.60
		Too acid	0.02	Too acid	0.07	Too acid	0.07
MhB:							
Monongahela---------	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
		Restricted permeability	0.74	Restricted permeability	0.60	Too steep for surface application	0.68
		Too acid	0.02	Too acid	0.07	Restricted permeability	0.60
						Too acid	0.07
MhC:							
Monongahela---------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.74	Slope	0.63	Too steep for surface application	1.00
		Slope	0.63	Restricted permeability	0.60	Too steep for sprinkler application	0.78
		Too acid	0.02	Too acid	0.07	Restricted permeability	0.60
						Too acid	0.07
MrC:							
Murrill-------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Too acid	0.91	Too steep for surface application	1.00
		Too acid	0.32	Slope	0.63	Too acid	0.91
						Too steep for sprinkler application	0.78
MrD:							
Murrill-------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	0.32	Too acid	0.91	Too steep for sprinkler application	1.00
						Too acid	0.91
MsC:							
Murrill-------------	85	Very limited		Somewhat limited		Very limited	
		Too stony	1.00	Too acid	0.91	Too steep for surface application	1.00
		Too acid	0.32	Slope	0.04	Too acid	0.91
		Slope	0.04			Too steep for sprinkler application	0.22

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MsE:							
Murrill	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Too stony	1.00	Too acid	0.91	Too steep for sprinkler application	1.00
		Too acid	0.32			Too acid	0.91
Pg:							
Philo	75	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95
		Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60
		Too acid	0.02	Too acid	0.07	Too acid	0.07
		Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
Ph:							
Philo	75	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.95	Flooding	1.00	Depth to saturated zone	0.95
		Flooding	0.60	Depth to saturated zone	0.95	Flooding	0.60
		Too acid	0.02	Too acid	0.07	Too acid	0.07
		Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
Ps:							
Pope	90	Somewhat limited		Very limited		Very limited	
		Flooding	0.60	Flooding	1.00	Too acid	1.00
		Too acid	0.50	Too acid	1.00	Flooding	0.60
		Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
Px:							
Pope	90	Somewhat limited		Very limited		Very limited	
		Flooding	0.60	Flooding	1.00	Too acid	1.00
		Too acid	0.50	Too acid	1.00	Flooding	0.60
Pz:							
Pope	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
Philo	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Too acid	1.00	Too acid	1.00
		Too acid	0.73	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
Qm:							
Quarry, limestone	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone	95	Not rated		Not rated		Not rated	

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
Qs:							
Quarry, shale	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Opequon	40	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
				Slope	1.00	Too steep for sprinkler application	1.00
RgG:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rough	45	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Too acid	0.78	Slope	1.00	Too steep for sprinkler application	1.00
		Runoff	0.40	Too acid	1.00	Too acid	1.00
RuD:							
Rushtown	90	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00
		Leaching	0.45	Filtering capacity	1.00	Filtering capacity	1.00
RuF:							
Rushtown	85	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00
		Leaching	0.45	Filtering capacity	1.00	Filtering capacity	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ShC:							
Schaffenaker--------	80	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Large stones on the surface	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Large stones on the surface	1.00	Large stones on the surface	1.00
		Depth to bedrock	0.90	Filtering capacity	1.00	Filtering capacity	1.00
SkF:							
Schaffenaker--------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Too steep for surface application	1.00
		Large stones on the surface	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
Rock outcrop--------	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker--------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.94	Large stones on the surface	1.00	Large stones on the surface	1.00
Vanderlip-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00
		Too stony	0.81	Large stones on the surface	1.00	Large stones on the surface	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
SnF:							
Schaffenaker--------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.94	Large stones on the surface	1.00	Large stones on the surface	1.00
Vanderlip-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Filtering capacity	1.00	Low adsorption	1.00	Too acid	1.00
		Large stones on the surface	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00
		Too stony	0.81	Large stones on the surface	1.00	Large stones on the surface	1.00
SxC:							
Sideling------------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Low adsorption	1.00	Too acid	1.00
		Too stony	1.00	Too acid	1.00	Restricted permeability	1.00
		Large stones on the surface	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Too acid	0.94	Filtering capacity	1.00	Filtering capacity	1.00
SxE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Restricted permeability	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too stony	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Large stones on the surface	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Filtering capacity	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SyE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Restricted permeability	1.00	Large stones on the surface	1.00	Large stones on the surface	1.00
		Large stones on the surface	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too stony	1.00	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering capacity	1.00	Restricted permeability	1.00	Restricted permeability	1.00
Ta:							
Tioga---------------	90	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Too acid	0.02	Too acid	0.07	Too acid	0.07
TyA:							
Tygart--------------	85	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Runoff	0.40	Too acid	0.91	Too acid	0.91
		Too acid	0.32				
Ua:							
Udorthents----------	95	Not rated		Not rated		Not rated	
Uu:							
Urban land----------	45	Not rated		Not rated		Not rated	
Udorthents----------	45	Not rated		Not rated		Not rated	
WaB:							
Weikert-------------	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	0.78	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	0.01	Too acid	1.00	Too steep for surface application	0.68
				Filtering capacity	0.01	Filtering capacity	0.01
WaC:							
Weikert-------------	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	0.78	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	0.63	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.01	Slope	0.63	Too steep for sprinkler application	0.78

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste: Rating class and limiting features	Value	Application of sewage sludge: Rating class and limiting features	Value	Disposal of wastewater by irrigation: Rating class and limiting features	Value
WbC:							
Weikert	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	0.78	Low adsorption	1.00	Too steep for surface application	1.00
		Slope	0.63	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.01	Slope	0.63	Too steep for sprinkler application	0.78
Berks	40	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	0.84	Low adsorption	1.00	Too steep for surface application	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Slope	0.63	Depth to bedrock	0.84	Depth to bedrock	0.84
		Filtering capacity	0.01	Slope	0.63	Too steep for sprinkler application	0.78
WbD:							
Weikert	50	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Too acid	0.78	Slope	1.00	Too steep for sprinkler application	1.00
		Filtering caapcity	0.01	Too acid	1.00	Too acid	1.00
Berks	35	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Low adsorption	1.00	Too steep for surface application	1.00
		Depth to bedrock	0.95	Slope	1.00	Too steep for sprinkler application	1.00
		Too acid	0.73	Too acid	1.00	Too acid	1.00
		Filtering capacity	0.01	Depth to bedrock	0.95	Depth to bedrock	0.95
WkF:							
Weikert	50	Very limited		Very limited		Very limited	
		Slope	1.00	Droughty	1.00	Droughty	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low adsorption	1.00	Too acid	1.00
		Filtering capacity	1.00	Too acid	1.00	Too steep for surface application	1.00
		Too acid	0.94	Slope	1.00	Too steep for sprinkler application	1.00

Table 8a.--Agricultural Waste Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WkF:							
Berks---------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Too acid	1.00
		Droughty	1.00	Too acid	1.00	Too steep for surface application	1.00
		Filtering capacity	1.00	Slope	1.00		
				Droughty	1.00		
		Too acid	0.94	Filtering capacity	1.00	Too steep for sprinkler application	1.00
		Depth to bedrock	0.84				
						Droughty	1.00
						Filtering capacity	1.00

Table 8b.--Agricultural Waste Management (Part 2)

(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	Overland flow of wastewater		Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Restricted permeability	1.00	Too steep for surface application	0.68
		Too acid	0.07	Slope	0.50	Too acid	0.07
AgC:							
Allegheny-----------	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Restricted permeability	1.00	Too steep for surface application	0.68
		Too acid	0.07	Slope	0.50	Too acid	0.07
AnB:							
Andover-------------	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too acid	1.00
		Too acid	1.00			Restricted permeability	0.96
						Too steep for surface application	0.08
Ba:							
Basher--------------	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Restricted permeability	1.00	Flooding	0.60
		Depth to saturated zone	1.00	Flooding	0.60	Too acid	0.07
		Too acid	0.07	Too acid	0.03		
BbC:							
Berks---------------	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	0.62	Too steep for surface application	1.00
		Too steep for surface application	0.50	Too acid	0.14	Filtering capacity	1.00
				Cobble content	0.01	Too steep for sprinkler application	0.50
BbE:							
Berks---------------	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	0.62	Too steep for surface application	1.00
		Too steep for surface application	1.00	Too acid	0.14	Too steep for sprinkler application	1.00
				Cobble content	0.01	Filtering capacity	1.00

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater		Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BcD:							
Berks	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.61	Too steep for sprinkler application	1.00
		Too acid	1.00	Too acid	0.14	Too acid	1.00
				Cobble content	0.01	Filtering capacity	0.01
Calvin	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
BcE:							
Berks	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.61	Too steep for sprinkler application	1.00
		Too acid	1.00	Too acid	0.14	Too acid	1.00
				Cobble content	0.01	Filtering capacity	0.01
Calvin	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
BcF:							
Berks	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.61	Too steep for sprinkler application	1.00
		Too acid	1.00	Too acid	0.14	Too acid	1.00
				Cobble content	0.01	Filtering capacity	0.01

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
BcF:							
Calvin	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
BeB:							
Berks	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	0.61	Too acid	1.00
		Too acid	1.00	Slope	0.50	Too steep for surface application	0.68
				Too acid	0.14	Filtering capacity	0.01
				Cobble content	0.01		
Clearbrook	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	0.77
		Too acid	0.77	Cobble content	0.72	Too steep for surface application	0.68
		Cobble content	0.35	Slope	0.50	Restricted permeability	0.21
BeC:							
Berks	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too acid	1.00	Restricted permeability	0.61	Too acid	1.00
		Too steep for surface application	1.00	Too acid	0.14	Too steep for sprinkler application	1.00
				Cobble content	0.01	Filtering capacity	0.01
Clearbrook	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to saturated zone	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Too acid	0.77	Cobble content	0.72	Too acid	0.77

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater		Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BkB:							
Berks	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	0.61	Too acid	1.00
		Too acid	1.00	Slope	0.50	Too steep for surface application	0.68
				Too acid	0.14	Filtering capacity	0.01
				Cobble content	0.01		
Weikert	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.50	Too acid	1.00
		Too acid	1.00	Restricted permeability	0.31	Too steep for surface application	0.68
				Too acid	0.21	Filtering capacity	0.01
BqF:							
Blackthorn	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Large stones on the surface	1.00
		Too steep for surface application	1.00	Too acid	0.77	Too steep for surface application	1.00
		Cobble content	0.01			Too steep for sprinkler application	1.00
						Filtering capacity	1.00
BrB:							
Brinkerton	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Restricted permeability	0.96
		Too acid	0.91	Slope	0.50	Too acid	0.91
						Too steep for surface application	0.68
BuB:							
Buchanan	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Too acid	1.00
		Too acid	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.50	Restricted permeability	0.68
				Too acid	0.03	Too steep for surface application	0.68

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
BuC:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too steep for surface application	1.00
		Too acid	1.00	Restricted permeability	1.00	Too acid	1.00
		Too steep for surface application	1.00	Depth to saturated zone	1.00	Too steep for sprinkler application	1.00
		Depth to saturated zone	1.00	Too acid	0.03	Depth to saturated zone	1.00
						Restricted permeability	0.96
BxC:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Too acid	1.00
		Too acid	1.00	Depth to saturated zone	1.00	Too steep for surface application	1.00
		Depth to saturated zone	1.00	Slope	1.00	Large stones on the surface	1.00
		Too steep for surface application	0.50	Too acid	0.77	Filtering capacity	1.00
						Depth to saturated zone	1.00
BxE:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to saturated zone	1.00	Too steep for sprinkler application	1.00
		Depth to saturated zone	1.00	Too acid	0.21	Large stones on the surface	1.00
						Filtering capacity	1.00
CbB:							
Calvin--------------	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.50	Too acid	0.91
		Too acid	0.91	Restricted permeability	0.31	Too steep for surface application	0.68
						Filtering capacity	0.01
Berks---------------	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	0.61	Too acid	1.00
		Too acid	1.00	Slope	0.50	Too steep for surface application	0.68
				Too acid	0.14	Filtering capacity	0.01
				Cobble content	0.01		

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
CbC:							
Calvin	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
Berks	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too acid	1.00	Restricted permeability	0.61	Too acid	1.00
		Too steep for surface application	1.00	Too acid	0.14	Too steep for sprinkler application	1.00
				Cobble content	0.01	Filtering capacity	0.01
CkB:							
Calvin	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.50	Too acid	0.91
		Too acid	0.91	Restricted permeability	0.31	Too steep for surface application	0.68
						Filtering capacity	0.01
Klinesville	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.50	Too acid	0.91
		Too acid	0.91	Restricted permeability	0.31	Too steep for surface application	0.68
						Filtering capacity	0.01
CkC:							
Calvin	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
CkC:							
Klinesville	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
CkD:							
Calvin	65	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
Klinesville	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
CkE:							
Calvin	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
Klinesville	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
CkF:							
Calvin	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
Klinesville	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Filtering capacity	0.01
ClC:							
Caneyville	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Too acid	0.07			Restricted permeability	0.21
						Too acid	0.07
ClD:							
Caneyville	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Too acid	0.07			Restricted permeability	0.21
						Too acid	0.07
ClE:							
Caneyville	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Too acid	0.07			Restricted permeability	0.21
						Too acid	0.07

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
CnF:							
Caneyville----------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
		Too acid	0.07	Stone content	0.06	Restricted permeability	0.21
		Stone content	0.01			Too acid	0.07
CrB:							
Clarksburg----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Too steep for surface application	0.68
		Too acid	0.42	Slope	0.50	Restricted permeability	0.50
						Too acid	0.42
CrC:							
Clarksburg----------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to saturated zone	1.00	Too steep for sprinkler application	1.00
		Too acid	0.42			Restricted permeability	0.50
						Too acid	0.42
CvB:							
Clearbrook----------	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	0.77
		Too acid	0.77	Cobble content	0.23	Restricted permeability	0.21
		Cobble content	0.06			Too steep for surface application	0.08
Cavode--------------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Too acid	1.00
		Too acid	1.00	Depth to bedrock	1.00	Restricted permeability	0.96
						Too steep for surface application	0.08

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater		Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Cz:							
Combs	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Seepage	1.00	Restricted permeability	0.61		
				Flooding	0.60		
DkC:							
Dekalb	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	0.67	Too acid	1.00
		Too steep for surface application	0.50	Cobble content	0.61	Too steep for surface application	1.00
		Cobble content	0.28			Large stones on the surface	1.00
DrE:							
Dekalb	70	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	0.67	Too acid	1.00
		Too steep for surface application	1.00	Cobble content	0.36	Large stones on the surface	1.00
		Cobble content	0.30			Too steep for surface application	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
DsB:							
Downsville	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Restricted permeability	1.00	Too steep for surface application	0.68
		Too acid	0.21	Slope	0.50	Too acid	0.21
						Filtering capacity	0.01
DsC:							
Downsville	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
		Too acid	0.21			Too acid	0.21
						Filtering capacity	0.01
						Restricted permeability	0.43

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
Dz:							
Dunning	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	1.00
		Seepage	1.00	Flooding	0.60	Flooding	0.60
		Too level	0.50				
ErB:							
Ernest	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too acid	0.91
		Too acid	0.91	Slope	0.50	Too steep for surface application	0.68
ErC:							
Ernest	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to saturated zone	1.00	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
						Restricted permeability	0.43
HaE:							
Hazleton	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Too steep for surface application	1.00
		Too steep for surface application	1.00	Cobble content	0.70	Too steep for sprinkler application	1.00
		Cobble content	0.54	Restricted permeability	0.31	Large stones on the surface	1.00
						Filtering capacity	1.00
Dekalb	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	0.67	Too acid	1.00
		Too steep for surface application	1.00	Cobble content	0.61	Too steep for surface application	1.00
		Cobble content	0.28			Too steep for sprinkler application	1.00

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
HaF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Too steep for surface application	1.00
		Too steep for surface application	1.00	Cobble content	0.70	Too steep for sprinkler application	1.00
		Cobble content	0.54	Restricted permeability	0.31	Large stones on the surface	1.00
						Filtering capacity	1.00
Dekalb	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	0.67	Too acid	1.00
		Too steep for surface application	1.00	Cobble content	0.61	Too steep for surface application	1.00
		Cobble content	0.28			Too steep for sprinkler application	1.00
HdF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Large stones on the surface	1.00
		Too steep for surface application	1.00	Cobble content	0.70	Too steep for surface application	1.00
		Cobble content	0.54	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Stone content	0.01	Stone content	0.01	Filtering capacity	1.00
Dekalb	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	0.67	Too acid	1.00
		Too steep for surface application	1.00	Cobble content	0.56	Large stones on the surface	1.00
		Cobble content	0.25			Too steep for surface application	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
HeF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Large stones on the surface	1.00
		Too steep for surface application	1.00	Cobble content	0.70	Too steep for surface application	1.00
		Cobble content	0.54	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Stone content	0.07	Stone content	0.02	Filtering capacity	1.00
Dekalb	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	0.67	Too acid	1.00
		Too steep for surface application	1.00	Cobble content	0.56	Large stones on the surface	1.00
		Cobble content	0.25			Too steep for surface application	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Too steep for surface application	1.00
		Too steep for surface application	1.00	Cobble content	0.70	Too steep for sprinkler application	1.00
		Cobble content	0.54	Restricted permeability	0.31	Large stones on the surface	1.00
						Filtering capacity	1.00
Lehew	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Cobble content	0.33	Too steep for surface application	1.00
		Too steep for surface application	1.00	Too acid	0.21	Too steep for sprinkler application	1.00
		Cobble content	0.18			Large stones on the surface	1.00

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater		Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HlF:							
Dekalb	15	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Too acid	1.00	Too acid	0.67	Too acid	1.00
		Too steep for surface application	1.00	Cobble content	0.61	Too steep for surface application	1.00
		Cobble content	0.28			Too steep for sprinkler application	1.00
Ho:							
Holly	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Seepage	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00		
		Too level	0.50				
HwB:							
Hustontown	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too steep for surface application	0.68
		Too acid	0.42	Slope	0.50	Too acid	0.42
				Too acid	0.03	Restricted permeability	0.21
Ln:							
Lindside	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Seepage	1.00	Restricted permeability	1.00	Flooding	0.60
		Depth to saturated zone	0.95	Flooding	0.60		
LzC:							
Litz	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	0.99	Cobble content	0.05	Filtering capacity	1.00
		Cobble content	0.01	Stone content	0.01	Too steep for sprinkler application	0.99

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
LzD:							
Litz	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Cobble content	0.05	Too steep for sprinkler application	1.00
		Cobble content	0.01	Stone content	0.01	Filtering capacity	1.00
LzE:							
Litz	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Cobble content	0.05	Too steep for sprinkler application	1.00
		Cobble content	0.01	Stone content	0.01	Filtering capacity	1.00
LzF:							
Litz	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Cobble content	0.05	Too steep for sprinkler application	1.00
		Cobble content	0.01	Stone content	0.01	Filtering capacity	1.00
Me:							
Melvin	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Ponding	1.00	Ponding	1.00
		Seepage	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00		
		Too level	0.50				
MhA:							
Monongahela	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.43
		Too acid	0.07			Too acid	0.07

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
MhB:							
Monongahela	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too steep for surface application	0.68
		Too acid		Slope	0.50	Restricted permeability	0.43
						Too acid	0.07
MhC:							
Monongahela	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to saturated zone	1.00	Too steep for sprinkler application	1.00
		Too acid	0.07			Restricted permeability	0.43
						Too acid	0.07
MrC:							
Murrill	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
MrD:							
Murrill	85	Very limited		Very limited		Very limited	
		Too steep for surface application	1.00	Slope	1.00	Too steep for surface application	1.00
		Seepage	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
MsC:							
Murrill	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too acid	0.91	Slope	1.00	Too acid	0.91
		Too steep for surface application	0.50			Too steep for sprinkler application	0.50

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
MsE:							
Murrill	85	Very limited		Very limited		Very limited	
		Too steep for surface application	1.00	Slope	1.00	Too steep for surface application	1.00
		Seepage	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
		Too acid	0.91			Too acid	0.91
Pg:							
Philo	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Seepage	1.00	Restricted permeability	1.00	Flooding	0.60
		Depth to saturated zone	0.95	Flooding	0.60	Too acid	0.07
		Too acid	0.07			Filtering capacity	0.01
Ph:							
Philo	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Seepage	1.00	Restricted permeability	1.00	Flooding	0.60
		Depth to saturated zone	0.95	Flooding	0.60	Too acid	0.07
		Too acid	0.07			Filtering capacity	0.01
Ps:							
Pope	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Too acid	1.00
		Seepage	1.00	Restricted permeability	0.61	Flooding	0.60
		Too acid	1.00	Flooding	0.60	Filtering capacity	0.01
Px:							
Pope	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Too acid	1.00
		Seepage	1.00	Restricted permeability	1.00	Flooding	0.60
		Too acid	1.00	Flooding	0.60		
Pz:							
Pope	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	0.61	Filtering capacity	0.01
				Too acid	0.14		
Philo	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too acid	0.14	Filtering capacity	0.01

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
Qm:							
Quarry, limestone---	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone---	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale-------	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Opequon-------------	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Too steep for surface application	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Seepage	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
RgG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Rough---------------	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Too acid	0.21	Too steep for sprinkler application	1.00
		Too acid	1.00			Too acid	1.00
RuD:							
Rushtown------------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00			Too steep for surface application	1.00
		Too steep for surface application	1.00			Too steep for sprinkler application	1.00
						Filtering capacity	1.00
RuF:							
Rushtown------------	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00			Too steep for surface application	1.00
		Too steep for surface application	1.00			Too steep for sprinkler application	1.00
						Filtering capacity	1.00

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
ShC:							
Schaffenaker	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Too steep for surface application	1.00
		Too steep for surface application	0.50			Large stones on the surface	1.00
						Filtering capacity	1.00
SkF:							
Schaffenaker	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Too steep for surface application	1.00
		Too steep for surface application	1.00			Too steep for sprinkler application	1.00
						Large stones on the surface	1.00
Rock outcrop	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Too steep for surface application	1.00
		Too steep for surface application	1.00			Too steep for sprinkler application	1.00
						Large stones on the surface	1.00
Vanderlip	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Too acid	1.00	Stone content	0.65	Too acid	1.00
		Too steep for surface application	1.00			Too steep for surface application	1.00
						Too steep for sprinkler application	1.00
						Large stones on the surface	1.00

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
SnF:							
Schaffenaker	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Too acid	0.77	Too steep for surface application	1.00
		Too steep for surface application	1.00			Too steep for sprinkler application	1.00
						Large stones on the surface	1.00
Vanderlip	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Filtering capacity	1.00
		Too acid	1.00	Stone content	0.65	Too acid	1.00
		Too steep for surface application	1.00			Too steep for surface application	1.00
						Too steep for sprinkler application	1.00
						Large stones on the surface	1.00
SxC:							
Sideling	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Restricted permeability	1.00	Too acid	1.00
		Too acid	1.00	Depth to saturated zone	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.53	Slope	1.00	Large stones on the surface	1.00
		Too steep for surface application	0.50	Too acid	0.77	Filtering capacity	1.00
				Stone content	0.54	Restricted permeability	0.96
SxE:							
Sideling	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Depth to saturated zone	1.00	Too steep for sprinkler application	1.00
		Depth to saturated zone	0.53	Too acid	0.77	Large stones on the surface	1.00
				Stone content	0.54	Filtering capacity	1.00

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
SyE:							
Sideling	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	1.00	Large stones on the surface	1.00
		Too steep for surface application	1.00	Depth to saturated zone	1.00	Too steep for surface application	1.00
		Depth to saturated zone	0.53	Stone content	0.78	Too steep for sprinkler application	1.00
		Stone content	0.03	Too acid	0.77	Filtering capacity	1.00
Ta:							
Tioga	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Seepage	1.00	Restricted permeability	0.62	Too acid	0.07
		Too acid	0.07	Flooding	0.60		
TyA:							
Tygart	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Restricted permeability	1.00	Depth to saturated zone	1.00
		Seepage	1.00	Depth to saturated zone	1.00	Restricted permeability	0.96
		Too acid	0.91	Too acid	0.14	Too acid	0.91
Ua:							
Udorthents	95	Not rated		Not rated		Not rated	
Uu:							
Urban land	45	Not rated		Not rated		Not rated	
Udorthents	45	Not rated		Not rated		Not rated	
WaB:							
Weikert	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Restricted permeability	0.73	Too acid	1.00
		Too acid	1.00	Slope	0.50	Too steep for surface application	0.68
				Too acid	0.21	Filtering capacity	0.01
WaC:							
Weikert	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too acid	1.00	Restricted permeability	0.73	Too acid	1.00
		Too steep for surface application	1.00	Too acid	0.21	Too steep for sprinkler application	1.00
						Filtering capacity	0.01

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater: Rating class and limiting features	Value	Rapid infiltration of wastewater: Rating class and limiting features	Value	Slow rate treatment of wastewater: Rating class and limiting features	Value
WbC:							
Weikert	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too acid	1.00	Restricted permeability	0.31	Too acid	1.00
		Too steep for surface application	1.00	Too acid	0.21	Too steep for sprinkler application	1.00
						Filtering capacity	0.01
Berks	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too acid	1.00	Restricted permeability	0.61	Too acid	1.00
		Too steep for surface application	1.00	Too acid	0.14	Too steep for sprinkler application	1.00
				Cobble content	0.01	Filtering capacity	0.01
WbD:							
Weikert	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.31	Too steep for sprinkler application	1.00
		Too acid	1.00	Too acid	0.21	Too acid	1.00
						Filtering capacity	0.01
Berks	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for surface application	1.00
		Too steep for surface application	1.00	Restricted permeability	0.61	Too steep for sprinkler application	1.00
		Too acid	1.00	Too acid	0.14	Too acid	1.00
				Cobble content	0.01	Filtering capacity	0.01

Table 8b.--Agricultural Waste Management (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Overland flow of wastewater		Rapid infiltration of wastewater		Slow rate treatment of wastewater	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WkF:							
Weikert	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	0.31	Too steep for surface application	1.00
		Too steep for surface application	1.00			Too steep for sprinkler application	1.00
						Filtering capacity	1.00
Berks	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too acid	1.00
		Too acid	1.00	Restricted permeability	0.61	Too steep for surface application	1.00
		Too steep for surface application	1.00	Too acid	0.14	Too steep for sprinkler application	1.00
		Cobble content	0.02	Cobble content	0.10	Filtering capacity	1.00

Table 9.--Forest Productivity

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
AgB:				
Allegheny	northern red oak	78	57	black walnut, eastern white pine, northern red oak, white ash, white oak, yellow-poplar
	black oak	78	57	
	Virginia pine	72	114	
	yellow-poplar	93	100	
	white ash	---	---	
	pignut hickory	---	---	
	sugar maple	---	---	
AgC:				
Allegheny	northern red oak	78	57	black walnut, eastern white pine, northern red oak, white ash, white oak, yellow-poplar
	black oak	78	57	
	Virginia pine	72	114	
	yellow-poplar	93	100	
	white ash	---	---	
	pignut hickory	---	---	
	sugar maple	---	---	
AnB:				
Andover	northern red oak	75	57	American sycamore, baldcypress, green ash, pin oak, red maple, silver maple
	yellow-poplar	83	72	
Ba:				
Basher	northern red oak	80	57	black walnut, eastern white pine, northern red oak, sugar maple, white ash, yellow-poplar
	sugar maple	70	43	
	American basswood	85	57	
BbC:				
Berks	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	eastern white pine	70	121	
	black oak	60	43	
	chestnut oak	60	43	
	white oak	60	43	
	hickory	---	---	
BbE:				
Berks, north aspect	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	eastern white pine	70	121	
	black oak	60	43	
	chestnut oak	60	43	
	white oak	60	43	
	hickory	---	---	
Berks, south aspect	northern red oak	55	34	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	eastern white pine	65	102	
	black oak	55	34	
	chestnut oak	55	34	
	white oak	55	34	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
BcD:				
Berks, north aspect	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
Calvin, north aspect	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Berks, south aspect	northern red oak	50	34	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	48	63	
	black oak	48	32	
	chestnut oak	45	30	
	white oak	48	32	
	hickory	---	---	
Calvin, south aspect	northern red oak	51	35	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	50	34	
	Virginia pine	51	70	
	chestnut oak	47	32	
	black oak	51	35	
	hickory	---	---	
BcE:				
Berks, north aspect	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
Calvin, north aspect	northern red oak	60	43	eastern white pine, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Berks, south aspect	northern red oak	50	34	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	48	63	
	black oak	48	32	
	chestnut oak	45	30	
	white oak	48	32	
	hickory	---	---	
Calvin, south aspect	northern red oak	51	35	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	50	34	
	Virginia pine	51	70	
	chestnut oak	47	32	
	black oak	51	35	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
BcF:				
Berks, north aspect	northern red oak	58	41	eastern white pine, Japanese larch, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
Calvin, north aspect	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Berks, south aspect	northern red oak	50	34	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	48	63	
	black oak	48	32	
	chestnut oak	45	30	
	white oak	48	32	
	hickory	---	---	
Calvin, south aspect	northern red oak	51	35	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	50	34	
	Virginia pine	51	70	
	chestnut oak	47	32	
	black oak	51	35	
	hickory	---	---	
BeB:				
Berks	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
Clearbrook	northern red oak	70	57	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	yellow-poplar	80	72	
	hickory	---	---	
BeC:				
Berks	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
Clearbrook	northern red oak	70	57	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	yellow-poplar	80	72	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
BkB:				
Berks	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
Weikert	northern red oak	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine	52	73	
	white oak	58	41	
	chestnut oak	50	34	
	black oak	47	32	
	hickory	---	---	
BqF:				
Blackthorn	northern red oak	70	57	black walnut, eastern white pine, northern red oak, sugar maple, white ash, yellow-poplar
	white oak	70	57	
	eastern white pine	80	143	
	yellow-poplar	75	57	
	black walnut	---	---	
	hickory	---	---	
BrB:				
Brinkerton	black oak	80	57	American sycamore, baldcypress, green ash, pin oak, red maple, silver maple
	northern red oak	80	57	
	white oak	80	57	
	yellow-poplar	90	86	
BuB:				
Buchanan	northern red oak	70	52	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	69	51	
	black oak	73	55	
	eastern white pine	80	144	
	Virginia pine	63	96	
	yellow-poplar	80	71	
	hickory	---	---	
BuC:				
Buchanan	northern red oak	70	52	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	69	51	
	black oak	73	55	
	eastern white pine	80	144	
	Virginia pine	63	96	
	yellow-poplar	80	71	
	hickory	---	---	
BxC:				
Buchanan	northern red oak	70	52	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	69	51	
	black oak	73	55	
	eastern white pine	80	144	
	Virginia pine	63	96	
	yellow-poplar	80	71	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
BxE:				
Buchanan	northern red oak	70	52	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	69	51	
	black oak	73	55	
	eastern white pine	80	144	
	Virginia pine	63	96	
	yellow-poplar	80	71	
	hickory	---	---	
CbB:				
Calvin	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Berks	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
CbC:				
Calvin	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Berks	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	
CkB:				
Calvin	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Klinesville	northern red oak	55	38	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	white oak	56	39	
	chestnut oak	52	36	
	black oak	55	38	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CkC:				
Calvin	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	---	
	black oak	58	---	
	hickory	---	---	
Klinesville	northern red oak	55	38	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	white oak	56	39	
	chestnut oak	52	36	
	black oak	55	38	
	hickory	---	---	
CkD:				
Calvin, north aspect	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Klinesville, north aspect	northern red oak	55	38	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	white oak	56	39	
	chestnut oak	52	36	
	black oak	55	38	
	hickory	---	---	
Calvin, south aspect	northern red oak	51	35	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	50	34	
	Virginia pine	51	70	
	chestnut oak	47	31	
	black oak	51	35	
	hickory	---	---	
Klinesville, south aspect	northern red oak	47	32	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	48	63	
	white oak	48	32	
	chestnut oak	44	29	
	black oak	47	32	
	hickory	---	---	
CkE:				
Calvin, north aspect	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CkE:				
Klinesville, north aspect	northern red oak	55	38	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	white oak	56	39	
	chestnut oak	52	36	
	black oak	55	38	
	hickory	---	---	
Calvin, south aspect	northern red oak	51	35	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	50	34	
	Virginia pine	51	70	
	chestnut oak	47	31	
	black oak	51	35	
	hickory	---	---	
Klinesville, south aspect	northern red oak	47	32	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	48	63	
	white oak	48	32	
	chestnut oak	44	29	
	black oak	47	32	
	hickory	---	---	
CkF:				
Calvin, north aspect	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	59	42	
	Virginia pine	60	91	
	chestnut oak	55	38	
	black oak	60	43	
	hickory	---	---	
Klinesville, north aspect	northern red oak	55	38	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	white oak	56	39	
	chestnut oak	52	36	
	black oak	55	38	
	hickory	---	---	
Calvin, south aspect	northern red oak	51	35	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	white oak	50	34	
	Virginia pine	51	70	
	chestnut oak	47	31	
	black oak	51	35	
	hickory	---	---	
Klinesville, south aspect	northern red oak	47	32	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	48	63	
	white oak	48	32	
	chestnut oak	44	29	
	black oak	47	32	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
ClC:				
Caneyville	northern red oak	70	52	black locust, black walnut, eastern white pine, sugar maple, white ash, white oak
	black oak	70	52	
	white oak	65	48	
	eastern redcedar	36	---	
	sugar maple	---	---	
	hickory	---	---	
ClD:				
Caneyville, north aspect	northern red oak	70	52	black locust, black walnut, eastern white pine, sugar maple, white ash, white oak
	black oak	70	52	
	white oak	65	48	
	eastern redcedar	36	---	
	sugar maple	---	---	
	hickory	---	---	
Caneyville, south aspect	northern red oak	60	43	black locust, black walnut, eastern white pine, sugar maple, white ash, white oak
	black oak	60	43	
	white oak	55	38	
	eastern redcedar	31	---	
	sugar maple	---	---	
	hickory	---	---	
ClE:				
Caneyville, north aspect	northern red oak	70	52	black locust, black walnut, eastern white pine, sugar maple, white ash, white oak
	black oak	70	52	
	white oak	65	48	
	eastern redcedar	36	---	
	sugar maple	---	---	
	hickory	---	---	
Caneyville, south aspect	northern red oak	60	43	black locust, black walnut, eastern white pine, sugar maple, white ash, white oak
	black oak	60	43	
	white oak	55	38	
	eastern redcedar	31	---	
	sugar maple	---	---	
	hickory	---	---	
CnF:				
Caneyville, north aspect	northern red oak	70	52	black locust, black walnut, eastern white pine, sugar maple, white ash, white oak
	black oak	70	52	
	white oak	65	48	
	eastern redcedar	36	---	
	sugar maple	---	---	
	hickory	---	---	
Caneyville, south aspect	northern red oak	60	43	black locust, black walnut, eastern white pine, sugar maple, white ash, white oak
	black oak	60	43	
	white oak	55	38	
	eastern redcedar	31	---	
	sugar maple	---	---	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CrB:				
Clarksburg	northern red oak	75	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	black oak	75	57	
	white oak	75	57	
	yellow-poplar	85	86	
	hickory	---	---	
CrC:				
Clarksburg	northern red oak	75	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	black oak	75	57	
	white oak	75	57	
	yellow-poplar	85	86	
	hickory	---	---	
CvB:				
Clearbrook	northern red oak	70	57	American sycamore, pin oak, red maple, yellow-poplar
	yellow-poplar	80	72	
	hickory	---	---	
Cavode	northern red oak	83	57	American sycamore, pin oak, red maple, yellow-poplar
	yellow-poplar	95	100	
	hickory	---	---	
Cz:				
Combs	northern red oak	90	72	black walnut, eastern white pine, northern red oak, sugar maple, white ash, white oak
	white oak	---	---	
	American sycamore	---	---	
	yellow-poplar	115	129	
	black walnut	---	---	
DkC:				
Dekalb	northern red oak	57	40	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	56	39	
	black oak	57	40	
	Virginia pine	56	82	
	hickory	---	---	
DrE:				
Dekalb, north aspect	northern red oak	52	36	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	49	33	
	black oak	52	36	
	Virginia pine	54	77	
	hickory	---	---	
Dekalb, south aspect	northern red oak	44	29	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	42	28	
	black oak	44	29	
	Virginia pine	46	58	
	hickory	---	---	
Rock outcrop.				
DsB:				
Downsville	northern red oak	85	72	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	75	57	
	yellow-poplar	90	86	
	black walnut	---	---	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
DsC:				
Downsville	northern red oak	85	72	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	75	57	
	yellow-poplar	90	86	
	black walnut	---	---	
	hickory	---	---	
Dz:				
Dunning	pin oak	95	72	American sycamore, baldcypress, green ash, pin oak, red maple, silver maple
	American sycamore	---	---	
ErB:				
Ernest	northern red oak	80	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	black cherry	80	57	
	yellow-poplar	89	86	
	black walnut	---	---	
	white ash	---	---	
	sugar maple	80	57	
	hickory	---	---	
ErC:				
Ernest	northern red oak	80	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	black cherry	80	57	
	yellow-poplar	89	86	
	black walnut	---	---	
	white ash	---	---	
	sugar maple	80	57	
	hickory	---	---	
HaE:				
Hazleton, north aspect	northern red oak	70	52	eastern white pine, loblolly pine, Virginia pine, white oak, Norway spruce, black locust
	chestnut oak	65	48	
	Virginia pine	65	100	
	black oak	70	52	
	hickory	---	---	
Dekalb, north aspect	northern red oak	57	40	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	56	39	
	black oak	57	40	
	Virginia pine	56	82	
	hickory	---	---	
Hazleton, south aspect	northern red oak	63	46	eastern white pine, loblolly pine, Virginia pine, white oak, Norway spruce, black locust
	chestnut oak	59	42	
	Virginia pine	59	88	
	black oak	63	46	
	hickory	---	---	
Dekalb, south aspect	northern red oak	48	32	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	48	32	
	black oak	48	32	
	Virginia pine	48	63	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
HaF:				
Hazleton, north aspect--	northern red oak----	70	52	eastern white pine, loblolly pine, Virginia pine, white oak, Norway spruce, black locust
	chestnut oak--------	65	48	
	Virginia pine-------	65	100	
	black oak-----------	70	52	
	hickory-------------	---	---	
Dekalb, north aspect----	northern red oak----	57	40	Austrian pine, eastern white pine, Japanese larch, red pine
	chestnut oak--------	56	39	
	black oak-----------	57	40	
	Virginia pine-------	56	82	
	hickory-------------	---	---	
Hazleton, south aspect--	northern red oak----	63	46	eastern white pine, loblolly pine, Virginia pine, white oak, Norway spruce, black locust
	chestnut oak--------	59	42	
	Virginia pine-------	59	88	
	black oak-----------	63	46	
	hickory-------------	---	---	
Dekalb, south aspect----	northern red oak----	48	32	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak--------	48	32	
	black oak-----------	48	32	
	Virginia pine-------	48	63	
	hickory-------------	---	---	
HdF:				
Hazleton, north aspect--	northern red oak----	70	52	eastern white pine, loblolly pine, Virginia pine, white oak, Norway spruce, black locust
	chestnut oak--------	65	48	
	Virginia pine-------	65	100	
	black oak-----------	70	52	
	hickory-------------	---	---	
Dekalb, north aspect----	northern red oak----	57	40	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak--------	56	39	
	black oak-----------	57	40	
	Virginia pine-------	56	82	
	hickory-------------	---	---	
Hazleton, south aspect--	northern red oak----	63	46	eastern white pine, loblolly pine, Virginia pine, white oak, Norway spruce, black locust
	chestnut oak--------	59	42	
	Virginia pine-------	59	88	
	black oak-----------	63	46	
	hickory-------------	---	---	
Dekalb, south aspect----	northern red oak----	48	32	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak--------	48	32	
	black oak-----------	48	32	
	Virginia pine-------	48	63	
	hickory-------------	---	---	
Rock outcrop.				

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
HeF:				
Hazleton, north aspect--	northern red oak----	70	52	eastern white pine,
	chestnut oak--------	65	48	loblolly pine,
	Virginia pine-------	65	100	Virginia pine,
	black oak-----------	70	52	white oak, Norway
	hickory-------------	---	---	spruce, black
				locust
Dekalb, north aspect----	northern red oak----	57	40	eastern white pine,
	chestnut oak--------	56	39	loblolly pine,
	black oak-----------	57	40	Norway spruce, red
	Virginia pine-------	56	82	pine, white oak
	hickory-------------	---	---	
Hazleton, south aspect--	northern red oak----	63	46	eastern white pine,
	chestnut oak--------	59	42	loblolly pine,
	Virginia pine-------	59	88	Virginia pine,
	black oak-----------	63	46	white oak, Norway
	hickory-------------	---	---	spruce, black
				locust
Dekalb, south aspect----	northern red oak----	48	32	eastern white pine,
	chestnut oak--------	48	32	loblolly pine,
	black oak-----------	48	32	Norway spruce, red
	Virginia pine-------	48	63	pine, white oak
	hickory-------------	---	---	
Rock outcrop.				
HlF:				
Hazleton, north aspect--	northern red oak----	70	52	eastern white pine,
	chestnut oak--------	65	48	loblolly pine,
	Virginia pine-------	65	100	Virginia pine,
	black oak-----------	70	52	white oak, Norway
	hickory-------------	---	---	spruce, black
				locust
Lehew, north aspect-----	northern red oak----	60	43	eastern white pine,
	chestnut oak--------	57	40	loblolly pine,
	white oak-----------	57	40	Norway spruce, red
	black oak-----------	60	43	pine, white oak
	Virginia pine-------	59	88	
	hickory-------------	---	---	
Dekalb, north aspect----	northern red oak----	57	40	eastern white pine,
	chestnut oak--------	56	39	loblolly pine,
	black oak-----------	57	40	Norway spruce, red
	Virginia pine-------	56	82	pine, white oak
	hickory-------------	---	---	
Hazleton, south aspect--	northern red oak----	63	46	eastern white pine,
	chestnut oak--------	59	42	loblolly pine,
	Virginia pine-------	59	88	Virginia pine,
	black oak-----------	63	46	white oak, Norway
	hickory-------------	---	---	spruce, black
				locust

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
HlF:				
Lehew, south aspect	northern red oak	55	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	55	40	
	white oak	52	40	
	black oak	55	43	
	Virginia pine	56	88	
	hickory	---	---	
Dekalb, south aspect	northern red oak	48	32	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	48	32	
	black oak	48	32	
	Virginia pine	48	63	
	hickory	---	---	
Ho:				
Holly	pin oak	90	57	American sycamore, baldcypress, green ash, pin oak, red maple, silver maple
	swamp white oak	---	---	
	black cherry	---	---	
	eastern cottonwood	---	---	
	green ash	---	---	
	red maple	---	---	
HwB:				
Hustontown	northern red oak	70	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	yellow-poplar	75	57	
	white ash	---	---	
	red maple	---	---	
	hickory	---	---	
Ln:				
Lindside	northern red oak	85	72	eastern white pine, black walnut, Norway spruce, black oak, northern red oak, white oak, white ash
	black oak	85	72	
	white oak	85	72	
	yellow-poplar	95	100	
LzC:				
Litz	northern red oak	64	47	black locust, eastern white pine, loblolly pine, sugar maple, Virginia pine, white ash
	eastern white pine	72	126	
	black oak	64	47	
	chestnut oak	62	45	
	white oak	62	45	
	hickory	---	---	
LzD:				
Litz, north aspect	northern red oak	64	47	black locust, eastern white pine, loblolly pine, sugar maple, Virginia pine, white ash
	eastern white pine	72	126	
	black oak	64	47	
	chestnut oak	62	45	
	white oak	62	45	
	hickory	---	---	
Litz, south aspect	northern red oak	54	38	black locust, eastern white pine, loblolly pine, sugar maple, Virginia pine, white ash
	eastern white pine	61	99	
	black oak	54	38	
	chestnut oak	53	36	
	white oak	53	36	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
LzE:				
Litz, north aspect------	northern red oak----	64	47	black locust, eastern white pine, loblolly pine, sugar maple, Virginia pine, white ash
	eastern white pine--	72	126	
	black oak-----------	64	47	
	chestnut oak--------	62	45	
	white oak-----------	62	45	
	hickory-------------	---	---	
Litz, south aspect------	northern red oak----	54	38	black locust, eastern white pine, loblolly pine, sugar maple, Virginia pine, white ash
	eastern white pine--	61	99	
	black oak-----------	54	38	
	chestnut oak--------	53	36	
	white oak-----------	53	36	
	hickory-------------	---	---	
LzF:				
Litz, north aspect------	northern red oak----	64	47	black locust, eastern white pine, loblolly pine, sugar maple, Virginia pine, white ash
	eastern white pine--	72	126	
	black oak-----------	64	47	
	chestnut oak--------	62	45	
	white oak-----------	62	45	
	hickory-------------	---	---	
Litz, south aspect------	northern red oak----	54	38	black locust, eastern white pine, loblolly pine, sugar maple, Virginia pine, white ash
	eastern white pine--	61	99	
	black oak-----------	54	38	
	chestnut oak--------	53	36	
	white oak-----------	53	36	
	hickory-------------	---	---	
Me:				
Melvin------------------	pin oak-------------	85	72	American sycamore, baldcypress, green ash, pin oak, red maple, silver maple
	American elm--------	---	---	
	sweetgum------------	90	100	
	green ash-----------	---	---	
	common hackberry----	---	---	
	hickory-------------	---	---	
	red maple-----------	---	---	
MhA:				
Monongahela-------------	northern red oak----	70	52	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak-----------	70	52	
	eastern white pine--	72	131	
	Virginia pine-------	66	102	
MhB:				
Monongahela-------------	northern red oak----	70	52	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak-----------	70	52	
	eastern white pine--	72	131	
	Virginia pine-------	66	102	
MhC:				
Monongahela-------------	northern red oak----	70	52	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak-----------	70	52	
	eastern white pine--	72	131	
	Virginia pine-------	66	102	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
MrC:				
Murrill	northern red oak	70	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	black oak	70	57	
	white oak	70	57	
	yellow-poplar	80	72	
	hickory	---	---	
MrD:				
Murrill	northern red oak	70	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	70	57	
	black oak	70	57	
	yellow-poplar	80	72	
	hickory	---	---	
MsC:				
Murrill	northern red oak	70	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	70	57	
	black oak	70	57	
	yellow-poplar	80	72	
	hickory	---	---	
MsE:				
Murrill	northern red oak	70	57	black locust, black walnut, eastern white pine, northern red oak, sugar maple
	white oak	70	57	
	black oak	70	57	
	yellow-poplar	80	72	
	hickory	---	---	
Pg:				
Philo	northern red oak	86	72	eastern white pine, northern red oak, sugar maple, white ash, yellow-poplar
	black oak	85	72	
	white oak	85	72	
	Virginia pine	74	114	
	yellow-poplar	102	114	
	white ash	85	114	
Ph:				
Philo	northern red oak	86	72	eastern white pine, northern red oak, sugar maple, white ash, yellow-poplar
	black oak	85	72	
	white oak	85	72	
	Virginia pine	74	114	
	yellow-poplar	102	114	
	white ash	85	114	
Ps:				
Pope	northern red oak	82	64	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
	American basswood	---	---	
	white oak	80	57	
	American sycamore	---	---	
	yellow-poplar	96	100	
	American beech	---	---	
Px:				
Pope	northern red oak	82	64	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
	American basswood	---	---	
	white oak	80	57	
	American sycamore	---	---	
	yellow-poplar	96	100	
	American beech	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
Pz:				
Pope	northern red oak	82	64	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
	American basswood	---	---	
	white oak	80	57	
	American sycamore	---	---	
	yellow-poplar	96	100	
	American beech	---	---	
Philo	black oak	85	72	eastern white pine, northern red oak, sugar maple, white ash, yellow-poplar
	northern red oak	86	72	
	Virginia pine	74	114	
	white ash	85	114	
	white oak	85	72	
	yellow-poplar	102	114	
Qm: Quarry, limestone.				
Qo: Quarry, sandstone.				
Qs: Quarry, shale.				
ReG: Rock outcrop.				
Opequon, north aspect	northern red oak	50	29	eastern white pine, Virginia pine
	chestnut oak	---	0	
	white oak	50	29	
	hickory	---	---	
Opequon, south aspect	northern red oak	43	28	eastern white pine, Virginia pine
	chestnut oak	---	---	
	white oak	43	28	
	hickory	---	---	
RgG: Rock outcrop.				
Rough, north aspect	northern red oak	35	37	shortleaf pine, Virginia pine
	Virginia pine	37	39	
Rough, south aspect	northern red oak	30	20	shortleaf pine, Virginia pine
	Virginia pine	31	33	
RuD:				
Rushtown, north aspect	northern red oak	62	45	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	chestnut oak	60	43	
	eastern white pine	70	127	
	white oak	60	43	
	Virginia pine	60	86	
	hickory	---	---	
Rushtown, south aspect	northern red oak	56	45	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	chestnut oak	54	43	
	eastern white pine	63	127	
	white oak	54	43	
	Virginia pine	54	86	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
RuF:				
Rushtown, north aspect--	northern red oak----	62	45	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	chestnut oak--------	60	43	
	eastern white pine--	70	127	
	white oak-----------	60	43	
	Virginia pine-------	60	86	
	hickory-------------	---	---	
Rushtown, south aspect--	northern red oak----	56	45	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	chestnut oak--------	54	43	
	eastern white pine--	63	127	
	white oak-----------	54	43	
	Virginia pine-------	54	86	
	hickory-------------	---	---	
ShC:				
Schaffenaker------------	northern red oak----	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak--------	---	---	
	white oak-----------	60	43	
	Virginia pine-------	60	86	
	eastern white pine--	70	114	
	hickory-------------	---	---	
SkF:				
Schaffenaker, north aspect-----------------	northern red oak----	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak--------	---	---	
	white oak-----------	60	43	
	Virginia pine-------	60	86	
	eastern white pine--	70	114	
	hickory-------------	---	---	
Schaffenaker, south aspect-----------------	northern red oak----	51	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak--------	---	---	
	white oak-----------	51	43	
	Virginia pine-------	51	86	
	eastern white pine--	60	114	
	hickory-------------	---	---	
Rock outcrop.				
SnE:				
Schaffenaker, north aspect-----------------	northern red oak----	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak--------	---	---	
	white oak-----------	60	43	
	Virginia pine-------	60	86	
	eastern white pine--	70	114	
	hickory-------------	---	---	
Vanderlip, north aspect-	northern red oak----	75	57	black locust, black walnut, eastern white pine, sugar maple, white ash
	black oak-----------	75	57	
	Virginia pine-------	70	109	
	eastern white pine--	85	155	
	hickory-------------	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SnE:				
Schaffenaker, south aspect	northern red oak	51	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	---	---	
	white oak	51	43	
	Virginia pine	51	86	
	eastern white pine	60	114	
	hickory	---	---	
Vanderlip, south aspect	northern red oak	68	50	black locust, black walnut, eastern white pine, sugar maple, white ash
	black oak	68	50	
	Virginia pine	63	96	
	eastern white pine	77	137	
	hickory	---	---	
SnF:				
Schaffenaker, north aspect	northern red oak	60	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	---	0	
	white oak	60	43	
	Virginia pine	60	86	
	eastern white pine	70	114	
	hickory	---	---	
Vanderlip, north aspect	northern red oak	75	57	black locust, black walnut, eastern white pine, sugar maple, white ash
	black oak	75	57	
	Virginia pine	70	109	
	eastern white pine	85	155	
	hickory	---	---	
Schaffenaker, south aspect	northern red oak	51	43	eastern white pine, loblolly pine, Norway spruce, red pine, white oak
	chestnut oak	---	0	
	white oak	51	43	
	Virginia pine	51	86	
	eastern white pine	60	114	
	hickory	---	---	
Vanderlip, south aspect	northern red oak	68	50	black locust, black walnut, eastern white pine, sugar maple, white ash
	black oak	68	50	
	Virginia pine	63	96	
	eastern white pine	77	137	
	hickory	---	---	
SxC:				
Sideling	northern red oak	80	62	ash, eastern white pine, northern red oak, yellow-poplar
	yellow-poplar	90	90	
	white oak	---	---	
	scarlet oak	---	---	
	black oak	---	---	
	hickory	---	---	
SxE:				
Sideling	northern red oak	80	62	ash, eastern white pine, northern red oak, yellow-poplar
	yellow-poplar	90	90	
	white oak	---	---	
	scarlet oak	---	---	
	black oak	---	---	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SyE:				
Sideling	northern red oak	80	62	ash, eastern white pine, northern red oak, yellow-poplar
	yellow-poplar	90	90	
	white oak	---	---	
	scarlet oak	---	---	
	black oak	---	---	
	hickory	---	---	
Ta:				
Tioga	northern red oak	75	57	eastern white pine, yellow-poplar, Norway spruce, black walnut, black locust, northern red oak, white oak
	sugar maple	67	43	
	yellow-poplar	85	86	
TyA:				
Tygart	northern red oak	80	57	American sycamore, pin oak, red maple, yellow-poplar
	black oak	80	57	
	white oak	80	57	
	yellow-poplar	90	86	
Ua:				
Udorthents.				
Uu:				
Urban land.				
Udorthents.				
WaB:				
Weikert	northern red oak	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine	52	73	
	white oak	58	41	
	chestnut oak	50	34	
	black oak	47	32	
	hickory	---	---	
WaC:				
Weikert	northern red oak	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine	52	73	
	white oak	58	41	
	chestnut oak	50	34	
	black oak	47	32	
	hickory	---	---	
WbC:				
Weikert	northern red oak	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine	52	73	
	white oak	58	41	
	chestnut oak	50	34	
	black oak	47	32	
	hickory	---	---	
Berks	northern red oak	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine	57	84	
	black oak	56	39	
	chestnut oak	53	36	
	white oak	57	40	
	hickory	---	---	

Table 9.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
WbD:				
Weikert, north aspect---	northern red oak----	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine-------	52	73	
	white oak-----------	58	41	
	chestnut oak--------	50	34	
	black oak-----------	47	32	
	hickory-------------	---	---	
Berks, north aspect-----	northern red oak----	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine-------	57	84	
	black oak-----------	56	39	
	chestnut oak--------	53	36	
	white oak-----------	57	40	
	hickory-------------	---	---	
Weikert, south aspect---	northern red oak----	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine-------	52	73	
	white oak-----------	58	41	
	chestnut oak--------	50	34	
	black oak-----------	47	32	
	hickory-------------	---	---	
Berks, south aspect-----	northern red oak----	50	34	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine-------	48	63	
	black oak-----------	48	32	
	chestnut oak--------	45	30	
	white oak-----------	48	32	
	hickory-------------	---	---	
WkF:				
Weikert, north aspect---	northern red oak----	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine-------	52	73	
	white oak-----------	58	41	
	chestnut oak--------	50	34	
	black oak-----------	47	32	
	hickory-------------	---	---	
Berks, north aspect-----	northern red oak----	58	41	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine-------	57	84	
	black oak-----------	56	39	
	chestnut oak--------	53	36	
	white oak-----------	57	40	
	hickory-------------	---	---	
Weikert, south aspect---	northern red oak----	53	36	eastern white pine, loblolly pine, red pine, shortleaf pine, Virginia pine
	Virginia pine-------	52	73	
	white oak-----------	58	41	
	chestnut oak--------	50	34	
	black oak-----------	47	32	
	hickory-------------	---	---	
Berks, south aspect-----	northern red oak----	50	34	eastern white pine, loblolly pine, Norway spruce, red pine, Virginia pine
	Virginia pine-------	48	63	
	black oak-----------	48	32	
	chestnut oak--------	45	30	
	white oak-----------	48	32	
	hickory-------------	---	---	

Table 10a.--Forestland Management (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	80	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
		Strength	0.50	Cutbanks cave	0.50	Rutting	0.50
AgC:							
Allegheny-----------	80	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
		Strength	0.50	Cutbanks cave	0.50	Rutting	0.50
AnB:							
Andover-------------	75	Moderate		Poorly suited		Moderately suited	
		Cutbanks cave	0.10	Wetness	1.00	Rutting	0.25
				Cutbanks cave	0.10		
Ba:							
Basher--------------	75	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
BbC:							
Berks---------------	80	Slight		Moderately suited		Moderately suited	
				Rock fragments	0.23	Rutting	0.25
				Slope	0.05	Rock fragments	0.23
BbE:							
Berks---------------	75	Moderate		Poorly suited		Moderately suited	
		15 to 30% slope	0.77	Slope	1.00	20 to 35% slope	0.34
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rutting	0.25
				Rock fragments	0.23	Rock fragments	0.23
BcD:							
Berks---------------	45	Moderate		Poorly suited		Moderately suited	
		Cutbanks cave	0.50	Slope	1.00	Rutting	0.25
		15 to 30% slope	0.22	Cutbanks cave	0.50	20 to 35% slope	0.01
Calvin--------------	40	Moderate		Poorly suited		Moderately suited	
		Cutbanks cave	0.50	Slope	1.00	Strength	0.50
		15 to 30% slope	0.22	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50	20 to 35% slope	0.01
BcE:							
Berks---------------	50	Moderate		Poorly suited		Moderately suited	
		>30% slope	1.00	Slope	1.00	20 to 35% slope	0.67
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rutting	0.25
Calvin--------------	40	Moderate		Poorly suited		Moderately suited	
		>30% slope	1.00	Slope	1.00	20 to 35% slope	0.67
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
BcF:							
Berks---------------	50	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rutting	0.25

Table 10a.--Forestland Management (Part 1)--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	Suitability for use of harvesting equipment: Rating class and limiting features	Value
BcF:							
Calvin	40	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
BeB:							
Berks	50	Slight		Well suited		Moderately suited	
						Rutting	0.25
Clearbrook	45	Moderate		Moderately suited		Moderately suited	
		Strength	0.50	Wetness	0.80	Strength	0.50
				Strength	0.50	Rutting	0.50
BeC:							
Berks	55	Slight		Moderately suited		Moderately suited	
				Slope	0.63	Rutting	0.25
Clearbrook	40	Moderate		Moderately suited		Moderately suited	
		Strength	0.34	Wetness	0.71	Strength	0.50
				Slope	0.63	Rutting	0.50
				Strength	0.50		
BkB:							
Berks	45	Slight		Well suited		Moderately suited	
						Rutting	0.25
Weikert	40	Moderate		Well suited		Moderately suited	
		Restrictive layer	0.02			Rutting	0.05
BqF:							
Blackthorn	80	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Rock fragments	1.00	Rock fragments	1.00
		Cutbanks cave	1.00	Slope	1.00	>35% slope	1.00
		Stoniness	1.00	Cutbanks cave	1.00	Strength	0.50
				Strength	0.50	Rutting	0.50
BrB:							
Brinkerton	85	Moderate		Poorly suited		Moderately suited	
		Strength	0.50	Wetness	1.00	Strength	0.50
		Cutbanks cave	0.10	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.10		
BuB:							
Buchanan	85	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.10	Cutbanks cave	0.10	Rutting	0.05
BuC:							
Buchanan	85	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Slope	0.63	Rutting	0.05
				Cutbanks cave	0.50		
BxC:							
Buchanan	85	Moderate		Poorly suited		Poorly suited	
		Stoniness	0.50	Strength	1.00	Strength	1.00
		Cutbanks cave	0.50	Rock fragments	0.58	Rock fragments	0.58
		Strength	0.50	Cutbanks cave	0.50	Rutting	0.50
				Slope	0.05		

Table 10a.--Forestland Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BxE:							
Buchanan------------	85	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rock fragments	0.58
		15 to 30% slope	0.77	Slope	1.00	20 to 35% slope	0.34
		Stoniness	0.50	Rock fragments	0.58	Rutting	0.25
		Strength	0.50				
CbB:							
Calvin--------------	55	Slight		Moderately suited		Moderately suited	
				Strength	0.50	Strength	0.50
						Rutting	0.50
Berks---------------	35	Slight		Well suited		Moderately suited	
						Rutting	0.25
CbC:							
Calvin--------------	50	Slight		Moderately suited		Moderately suited	
				Slope	0.63	Strength	0.50
				Strength	0.50	Rutting	0.50
Berks---------------	35	Slight		Moderately suited		Moderately suited	
				Slope	0.63	Rutting	0.25
CkB:							
Calvin--------------	65	Slight		Moderately suited		Moderately suited	
				Strength	0.50	Strength	0.50
						Rutting	0.50
Klinesville---------	30	Moderate		Well suited		Moderately suited	
		Sandiness	0.09			Rutting	0.05
CkC:							
Calvin--------------	65	Slight		Moderately suited		Moderately suited	
				Slope	0.63	Strength	0.50
				Strength	0.50	Rutting	0.50
Klinesville---------	30	Moderate		Moderately suited		Moderately suited	
		Sandiness	0.09	Slope	0.63	Rutting	0.05
CkD:							
Calvin--------------	65	Moderate		Poorly suited		Moderately suited	
		Cutbanks cave	0.50	Slope	1.00	Strength	0.50
		15 to 30% slope	0.22	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50	20 to 35% slope	0.01
Klinesville---------	30	Moderate		Poorly suited		Moderately suited	
		15 to 30% slope	0.22	Slope	1.00	Rutting	0.05
		Cutbanks cave	0.10	Cutbanks cave	0.10	20 to 35% slope	0.01
		Sandiness	0.09				
CkE:							
Calvin--------------	60	Moderate		Poorly suited		Moderately suited	
		>30% slope	1.00	Slope	1.00	20 to 35% slope	0.67
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
Klinesville---------	30	Moderate		Poorly suited		Moderately suited	
		>30% slope	1.00	Slope	1.00	20 to 35% slope	0.67
		Cutbanks cave	0.10	Cutbanks cave	0.10	Rutting	0.05
		Sandiness	0.09				

Table 10a.--Forestland Management (Part 1)--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	Suitability for use of harvesting equipment: Rating class and limiting features	Value
CkF:							
Calvin	45	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
Klinesville	30	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.10	Cutbanks cave	0.10	Rutting	0.05
ClC:							
Caneyville	90	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Strength	0.50
				Slope	0.63	Rutting	0.50
				Strength	0.50		
ClD:							
Caneyville	85	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Strength	0.50
		Strength	0.50	Slope	1.00	Rutting	0.50
		Stickiness	0.50	Strength	0.50	20 to 35% slope	0.01
		Slope	0.50				
		15 to 30% slope	0.22				
ClE:							
Caneyville	85	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Slope	1.00	20 to 35% slope	0.67
		>30% slope	1.00	Cutbanks cave	1.00	Strength	0.50
		Stickiness	0.50	Strength	0.50	Rutting	0.50
		Slope	0.50				
		Strength	0.50				
CnF:							
Caneyville	85	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	1.00	Cutbanks cave	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
CrB:							
Clarksburg	80	Moderate		Moderately suited		Moderately suited	
		Strength	0.50	Strength	0.50	Strength	0.50
		Cutbanks cave	0.10	Cutbanks cave	0.10	Rutting	0.50
CrC:							
Clarksburg	80	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Slope	0.63	Strength	0.50
		Strength	0.34	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50		
CvB:							
Clearbrook	50	Moderate		Moderately suited		Moderately suited	
		Strength	0.50	Wetness	0.99	Strength	0.50
				Strength	0.50	Rutting	0.50
Cavode	35	Moderate		Moderately suited		Moderately suited	
		Strength	0.50	Wetness	0.95	Strength	0.50
				Strength	0.50	Rutting	0.50

Table 10a.--Forestland Management (Part 1)--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	Suitability for use of harvesting equipment: Rating class and limiting features	Value
Cz:							
Combs---------------	85	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Rutting	0.25
DkC:							
Dekalb--------------	85	Moderate		Moderately suited		Moderately suited	
		Stoniness	0.50	Rock fragments	0.62	Rock fragments	0.62
				Strength	0.50	Strength	0.50
				Slope	0.05	Rutting	0.50
DrE:							
Dekalb--------------	70	Severe		Poorly suited		Poorly suited	
		Stoniness	1.00	Rock fragments	1.00	Rock fragments	1.00
		15 to 30% slope	0.22	Slope	1.00	Rutting	0.50
						20 to 35% slope	0.01
Rock outcrop--------	15	Not rated		Not rated		Not rated	
DsB:							
Downsville----------	85	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
		Strength	0.50	Cutbanks cave	0.50	Rutting	0.50
DsC:							
Downsville----------	80	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Slope	0.63	Strength	0.50
		Strength	0.34	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50		
Dz:							
Dunning-------------	85	Severe		Poorly suited		Poorly suited	
		Flooding	1.00	Ponding	1.00	Wetness	1.00
		Wetness	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Wetness	1.00	Rutting	0.50
				Strength	0.50		
ErB:							
Ernest--------------	85	Moderate		Moderately suited		Moderately suited	
		Strength	0.50	Strength	0.50	Strength	0.50
		Cutbanks cave	0.10	Cutbanks cave	0.10	Rutting	0.50
				Wetness	0.04		
ErC:							
Ernest--------------	80	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Slope	0.63	Strength	0.50
		Strength	0.34	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50		
				Wetness	0.04		
HaE:							
Hazleton------------	45	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rock fragments	0.58
		15 to 30% slope	0.77	Slope	1.00	20 to 35% slope	0.34
		Stoniness	0.50	Rock fragments	0.58	Rutting	0.05
Dekalb--------------	40	Moderate		Poorly suited		Moderately suited	
		15 to 30% slope	0.77	Slope	1.00	Rock fragments	0.58
		Stoniness	0.50	Rock fragments	0.58	Strength	0.50
		Cutbanks cave	0.50	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50	20 to 35% slope	0.34

Table 10a.--Forestland Management (Part 1)--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	Suitability for use of harvesting equipment: Rating class and limiting features	Value
HaF:							
Hazleton------------	55	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rock fragments	0.58
		Stoniness	0.50	Rock fragments	0.58	Rutting	0.05
Dekalb--------------	25	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Stoniness	0.50	Rock fragments	0.58	Rock fragments	0.58
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
HdF:							
Hazleton------------	55	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Rock fragments	1.00	Rock fragments	1.00
		Cutbanks cave	1.00	Slope	1.00	>35% slope	1.00
		Stoniness	1.00	Cutbanks cave	1.00	Rutting	0.05
Dekalb--------------	25	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Rock fragments	1.00	Rock fragments	1.00
		Stoniness	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
Rock outcrop--------	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton------------	55	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Rock fragments	1.00	Rock fragments	1.00
		Cutbanks cave	1.00	Slope	1.00	>35% slope	1.00
		Stoniness	1.00	Cutbanks cave	1.00	Rutting	0.05
Dekalb--------------	25	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Rock fragments	1.00	Rock fragments	1.00
		Stoniness	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
Rock outcrop--------	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton------------	50	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rock fragments	0.58
		Stoniness	0.50	Rock fragments	0.58	Rutting	0.05
Lehew---------------	20	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Stoniness	0.50	Rock fragments	0.58	Rock fragments	0.58
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
Dekalb--------------	15	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Stoniness	0.50	Rock fragments	0.58	Rock fragments	0.58
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50

Table 10a.--Forestland Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ho:							
Holly---------------	80	Severe		Poorly suited		Poorly suited	
		Flooding	1.00	Ponding	1.00	Wetness	1.00
		Wetness	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Wetness	0.99	Rutting	0.50
				Strength	0.50		
HwB:							
Hustontown----------	85	Moderate		Moderately suited		Moderately suited	
		Strength	0.50	Strength	0.50	Strength	0.50
		Cutbanks cave	0.10	Wetness	0.18	Rutting	0.50
				Cutbanks cave	0.10		
Ln:							
Lindside------------	80	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
LzC:							
Litz----------------	90	Slight		Moderately suited		Moderately suited	
				Slope	0.50	Strength	0.50
				Strength	0.50	Rutting	0.50
LzD:							
Litz----------------	85	Moderate		Poorly suited		Moderately suited	
		Cutbanks cave	0.50	Slope	1.00	Strength	0.50
		15 to 30% slope	0.22	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50	20 to 35% slope	0.01
LzE:							
Litz----------------	80	Moderate		Poorly suited		Moderately suited	
		>30% slope	1.00	Slope	1.00	20 to 35% slope	0.67
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
LzF:							
Litz----------------	80	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
				Cutbanks cave	0.50	Rutting	0.50
Me:							
Melvin--------------	90	Severe		Poorly suited		Poorly suited	
		Flooding	1.00	Ponding	1.00	Wetness	1.00
		Wetness	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Wetness	0.99	Rutting	0.50
				Strength	0.50		
MhA:							
Monongahela---------	80	Moderate		Moderately suited		Moderately suited	
		Strength	0.50	Strength	0.50	Strength	0.50
		Cutbanks cave	0.10	Cutbanks cave	0.10	Rutting	0.50
				Wetness	0.02		
MhB:							
Monongahela---------	85	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
		Strength	0.50	Cutbanks cave	0.50	Rutting	0.50
				Wetness	0.02		

Table 10a.--Forestland Management (Part 1)--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	Suitability for use of harvesting equipment: Rating class and limiting features	Value
MhC:							
Monongahela---------	80	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Slope	0.63	Strength	0.50
		Strength	0.34	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50		
				Wetness	0.02		
MrC:							
Murrill-------------	90	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Slope	0.63	Strength	0.50
		Strength	0.34	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50		
MrD:							
Murrill-------------	85	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Strength	0.50
		Strength	0.50	Slope	1.00	Rutting	0.50
		15 to 30% slope	0.22	Strength	0.50	20 to 35% slope	0.01
MsC:							
Murrill-------------	85	Moderate		Moderately suited		Moderately suited	
		Stoniness	0.50	Rock fragments	0.58	Rock fragments	0.58
		Cutbanks cave	0.50	Strength	0.50	Strength	0.50
		Strength	0.50	Cutbanks cave	0.50	Rutting	0.50
				Slope	0.05		
MsE:							
Murrill-------------	85	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rock fragments	0.58
		15 to 30% slope	0.77	Slope	1.00	Strength	0.50
		Stoniness	0.50	Rock fragments	0.58	Rutting	0.50
		Strength	0.50	Strength	0.50	20 to 35% slope	0.34
Pg:							
Philo---------------	75	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
Ph:							
Philo---------------	75	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
Ps:							
Pope----------------	90	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
Px:							
Pope----------------	90	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
Pz:							
Pope----------------	50	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
Philo---------------	30	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50

Table 10a.--Forestland Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Qm:							
Quarry, limestone---	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone---	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale-------	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Opequon-------------	40	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rutting	0.50
		Restrictive layer	0.41	Stickiness	0.02	Stickiness	0.02
RgG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Rough---------------	45	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rutting	0.05
		Restrictive layer	0.88				
RuD:							
Rushtown------------	90	Moderate		Poorly suited		Moderately suited	
		Cutbanks cave	0.50	Slope	1.00	Rutting	0.05
		Sandiness	0.50	Cutbanks cave	0.50	20 to 35% slope	0.01
RuF:							
Rushtown------------	85	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rutting	0.05
ShC:							
Schaffenaker--------	80	Moderate		Moderately suited		Moderately suited	
		Sandiness	0.30	Rock fragments	0.30	Rock fragments	0.30
				Sandiness	0.14	Rutting	0.25
				Slope	0.05	Sandiness	0.14
SkF:							
Schaffenaker--------	45	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Rock fragments	1.00	Rock fragments	1.00
		Stoniness	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rutting	0.25
				Sandiness	0.14	Sandiness	0.14
Rock outcrop--------	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker--------	45	Moderate		Poorly suited		Moderately suited	
		15 to 30% slope	0.77	Slope	1.00	20 to 35% slope	0.34
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rock fragments	0.30
		Sandiness	0.50	Rock fragments	0.30	Rutting	0.25
				Sandiness	0.14	Sandiness	0.14
Vanderlip-----------	40	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rutting	0.50
		15 to 30% slope	0.77	Slope	1.00	20 to 35% slope	0.34
		Sandiness	0.49	Rock fragments	0.30	Rock fragments	0.30
		Stoniness	0.19				

Table 10a.--Forestland Management (Part 1)--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	Suitability for use of harvesting equipment: Rating class and limiting features	Value
SnF:							
Schaffenaker--------	40	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rock fragments	0.30
				Rock fragments	0.30	Rutting	0.25
				Sandiness	0.14	Sandiness	0.14
Vanderlip-----------	40	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rutting	0.50
				Rock fragments	0.30	Rock fragments	0.30
SxC:							
Sideling------------	85	Moderate		Moderately suited		Moderately suited	
		Stoniness	0.50	Rock fragments	0.58	Rock fragments	0.58
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rutting	0.50
		Strength	0.50	Slope	0.05		
SxE:							
Sideling------------	80	Severe		Poorly suited		Moderately suited	
		Cutbanks cave	1.00	Cutbanks cave	1.00	Rock fragments	0.58
		15 to 30% slope	0.77	Slope	1.00	Rutting	0.50
		Stoniness	0.50	Rock fragments	0.58	20 to 35% slope	0.34
		Strength	0.50				
SyE:							
Sideling------------	80	Severe		Poorly suited		Poorly suited	
		Cutbanks cave	1.00	Rock fragments	1.00	Rock fragments	1.00
		Stoniness	1.00	Cutbanks cave	1.00	20 to 35% slope	0.34
		15 to 30% slope	0.77	Slope	1.00	Rutting	0.25
		Strength	0.50				
Ta:							
Tioga---------------	90	Severe		Poorly suited		Moderately suited	
		Flooding	1.00	Flooding	1.00	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
TyA:							
Tygart--------------	85	Moderate		Moderately suited		Moderately suited	
		Cutbanks cave	0.50	Wetness	0.99	Strength	0.50
		Strength	0.50	Strength	0.50	Rutting	0.50
				Cutbanks cave	0.50		
Ua:							
Udorthents----------	95	Slight		Well suited		Well suited	
Uu:							
Urban land----------	45	Not rated		Not rated		Not rated	
Udorthents----------	45	Slight		Well suited		Well suited	
WaB:							
Weikert-------------	85	Moderate		Well suited		Moderately suited	
		Restrictive layer	0.02			Rutting	0.05
WaC:							
Weikert-------------	85	Moderate		Moderately suited		Moderately suited	
		Restrictive layer	0.02	Slope	0.63	Rutting	0.05

Table 10a.--Forestland Management (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Suitability for use of harvesting equipment	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WbC:							
Weikert-------------	45	Moderate		Moderately suited		Moderately suited	
		Restrictive layer	0.02	Slope	0.63	Rutting	0.05
Berks---------------	40	Slight		Moderately suited		Moderately suited	
				Slope	0.63	Rutting	0.25
WbD:							
Weikert-------------	50	Moderate		Poorly suited		Moderately suited	
		15 to 30% slope	0.22	Slope	1.00	Rutting	0.05
		Cutbanks cave	0.10	Cutbanks cave	0.10	20 to 35% slope	0.01
		Restrictive layer	0.02				
Berks---------------	35	Moderate		Poorly suited		Moderately suited	
		Cutbanks cave	0.50	Slope	1.00	Rutting	0.25
		15 to 30% slope	0.22	Cutbanks cave	0.50	20 to 35% slope	0.01
WkF:							
Weikert-------------	50	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rutting	0.05
Berks---------------	35	Severe		Poorly suited		Poorly suited	
		>30% slope	1.00	Slope	1.00	>35% slope	1.00
		Cutbanks cave	0.50	Cutbanks cave	0.50	Rutting	0.25

Table 10b.--Forestland Management (Part 2)

(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		Hazard of erosion on roads and trails		Potential for damage to soil by fire	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	80	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
AgC:							
Allegheny-----------	80	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
AnB:							
Andover-------------	75	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
Ba:							
Basher--------------	75	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
BbC:							
Berks---------------	80	Slight		Moderate		Low	
				Slope	0.50		
				Erodibility	0.50		
BbE:							
Berks---------------	75	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
BcD:							
Berks---------------	45	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95	Texture	0.10
		Erodibility	0.50	Erodibility	0.95	Coarse fragments	0.10
Calvin--------------	40	Moderate		Severe		Moderate	
		Slope	0.50	Slope	0.95	Texture	0.50
		Erodibility	0.50	Erodibility	0.95	Surface depth	0.50
						Coarse fragments	0.50
BcE:							
Berks---------------	50	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
Calvin--------------	40	Moderate		Severe		Moderate	
		Slope	0.50	Slope	0.95	Texture	0.50
		Erodibility	0.50	Erodibility	0.95	Slope	0.50
						Surface depth	0.50
						Coarse fragments	0.50
BcF:							
Berks---------------	50	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		

Table 10b.--Forestland Management (Part 2)--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		Potential for damage to soil by fire	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BcF:							
Calvin--------------	40	Severe		Severe		Moderate	
		Slope	0.75	Slope	0.95	Texture	0.50
		Erodibility	0.75	Erodibility	0.95	Slope	0.50
						Surface depth	0.50
						Coarse fragments	0.50
BeB:							
Berks---------------	50	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
Clearbrook----------	45	Slight		Moderate		Moderate	
				Slope	0.50	Texture	0.50
				Erodibility	0.50	Coarse fragments	0.50
BeC:							
Berks---------------	55	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
Clearbrook----------	40	Slight		Moderate		Moderate	
				Slope	0.50	Texture	0.50
				Erodibility	0.50	Coarse fragments	0.50
BkB:							
Berks---------------	45	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
Weikert-------------	40	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
BqF:							
Blackthorn----------	80	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
BrB:							
Brinkerton----------	85	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
BuB:							
Buchanan------------	85	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
BuC:							
Buchanan------------	85	Slight		Severe		Low	
				Slope	0.95	Texture	0.10
				Erodibility	0.95	Coarse fragments	0.10
BxC:							
Buchanan------------	85	Slight		Severe		Low	
				Slope	0.95		
				Erodibility	0.95		

Table 10b.--Forestland Management (Part 2)--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	Potential for damage to soil by fire: Rating class and limiting features	Value
BxE:							
Buchanan------------	85	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
CbB:							
Calvin--------------	55	Slight		Moderate		Low	
				Slope	0.50		
				Erodibility	0.50		
Berks---------------	35	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
CbC:							
Calvin--------------	50	Slight		Severe		Low	
				Slope	0.95		
				Erodibility	0.95		
Berks---------------	35	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
CkB:							
Calvin--------------	65	Slight		Moderate		Low	
				Slope	0.50		
				Erodibility	0.50		
Klinesville---------	30	Slight		Moderate		Moderate	
				Slope	0.95	Texture	0.50
				Erodibility	0.95	Surface depth	0.50
						Coarse fragments	0.50
CkC:							
Calvin--------------	65	Slight		Severe		Low	
				Slope	0.95		
				Erodibility	0.95		
Klinesville---------	30	Slight		Moderate		Moderate	
				Slope	0.50	Texture	0.50
				Erodibility	0.50	Surface depth	0.50
						Coarse fragments	0.50
CkD:							
Calvin--------------	65	Moderate		Severe		Moderate	
		Slope	0.50	Slope	0.95	Texture	0.50
		Erodibility	0.50	Erodibility	0.95	Surface depth	0.50
						Coarse fragments	0.50
Klinesville---------	30	Moderate		Severe		Moderate	
		Slope	0.50	Slope	0.95	Texture	0.50
		Erodibility	0.50	Erodibility	0.95	Surface depth	0.50
						Coarse fragments	0.50
CkE:							
Calvin--------------	60	Moderate		Severe		Moderate	
		Slope	0.50	Slope	0.95	Texture	0.50
		Erodibility	0.50	Erodibility	0.95	Slope	0.50
						Surface depth	0.50
						Coarse fragments	0.50

Table 10b.--Forestland Management (Part 2)--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	Potential for damage to soil by fire: Rating class and limiting features	Value
CkE:							
Klinesville---------	30	Moderate		Severe		Moderate	
		Slope	0.50	Slope	0.95	Texture	0.50
		Erodibility	0.50	Erodibility	0.95	Slope	0.50
						Surface depth	0.50
						Coarse fragments	0.50
CkF:							
Calvin--------------	45	Severe		Severe		Moderate	
		Slope	0.75	Slope	0.95	Texture	0.50
		Erodibility	0.75	Erodibility	0.95	Slope	0.50
						Surface depth	0.50
						Coarse fragments	0.50
Klinesville---------	30	Severe		Severe		Moderate	
		Slope	0.75	Slope	0.95	Texture	0.50
		Erodibility	0.75	Erodibility	0.95	Slope	0.50
						Surface depth	0.50
						Coarse fragments	0.50
ClC:							
Caneyville----------	90	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
ClD:							
Caneyville----------	85	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
ClE:							
Caneyville----------	85	Severe		Severe		Moderate	
		Slope	0.75	Slope	0.95	Texture	0.50
		Erodibility	0.75	Erodibility	0.95	Slope	0.50
						Surface depth	0.50
						Coarse fragments	0.50
CnF:							
Caneyville----------	85	Very severe		Severe		High	
		Slope	0.95	Slope	0.95	Texture	1.00
		Erodibility	0.95	Erodibility	0.95	Slope	1.00
						Surface depth	1.00
						Coarse fragments	1.00
CrB:							
Clarksburg----------	80	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
CrC:							
Clarksburg----------	80	Slight		Severe		Low	
				Slope	0.95	Texture	0.10
				Erodibility	0.95	Coarse fragments	0.10
CvB:							
Clearbrook----------	50	Slight		Slight		Moderate	
						Texture	0.50
						Coarse fragments	0.50
Cavode--------------	35	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10

Table 10b.--Forestland Management (Part 2)--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	Potential for damage to soil by fire: Rating class and limiting features	Value
Cz:							
Combs----------------	85	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
DkC:							
Dekalb---------------	85	Slight		Moderate		Low	
				Slope	0.50		
				Erodibility	0.50		
DrE:							
Dekalb---------------	70	Moderate		Moderate		Low	
		Slope	0.50	Slope	0.50		
		Erodibility	0.50	Erodibility	0.50		
Rock outcrop---------	15	Not rated		Not rated		Not rated	
DsB:							
Downsville-----------	85	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
DsC:							
Downsville-----------	80	Slight		Severe		Low	
				Slope	0.95	Texture	0.10
				Erodibility	0.95	Coarse fragments	0.10
Dz:							
Dunning--------------	85	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
ErB:							
Ernest---------------	85	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
ErC:							
Ernest---------------	80	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95	Texture	0.10
		Erodibility	0.50	Erodibility	0.95	Coarse fragments	0.10
HaE:							
Hazleton-------------	45	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
Dekalb---------------	40	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
HaF:							
Hazleton-------------	55	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Dekalb---------------	25	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		

Table 10b.--Forestland Management (Part 2)--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	Potential for damage to soil by fire: Rating class and limiting features	Value
HdF:							
Hazleton------------	55	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Dekalb--------------	25	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Rock outcrop--------	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton------------	55	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Dekalb--------------	25	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Rock outcrop--------	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton------------	50	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Lehew---------------	20	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Dekalb--------------	15	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Ho:							
Holly---------------	80	Slight		Slight		Low	
HwB:							
Hustontown----------	85	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
Ln:							
Lindside------------	80	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
LzC:							
Litz----------------	90	Slight		Severe		Low	
				Slope	0.95		
				Erodibility	0.95		
LzD:							
Litz----------------	85	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
LzE:							
Litz----------------	80	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		

Table 10b.--Forestland Management (Part 2)--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	Potential for damage to soil by fire: Rating class and limiting features	Value
LzF:							
Litz	80	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Me:							
Melvin	90	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
MhA:							
Monongahela	80	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
MhB:							
Monongahela	85	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
MhC:							
Monongahela	80	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95	Texture	0.10
		Erodibility	0.50	Erodibility	0.95	Coarse fragments	0.10
MrC:							
Murrill	90	Slight		Severe		Low	
				Slope	0.95	Texture	0.10
				Erodibility	0.95	Coarse fragments	0.10
MrD:							
Murrill	85	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95	Texture	0.10
		Erodibility	0.50	Erodibility	0.95	Coarse fragments	0.10
MsC:							
Murrill	85	Slight		Severe		Low	
				Slope	0.95	Texture	0.10
				Erodibility	0.95	Coarse fragments	0.10
MsE:							
Murrill	85	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95	Texture	0.10
		Erodibility	0.50	Erodibility	0.95	Coarse fragments	0.10
Pg:							
Philo	75	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
Ph:							
Philo	75	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
Ps:							
Pope	90	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10

Table 10b.--Forestland Management (Part 2)--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	Potential for damage to soil by fire: Rating class and limiting features	Value
Px:							
Pope----------------	90	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
Pz:							
Pope----------------	50	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
Philo---------------	30	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
Qm:							
Quarry, limestone---	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone---	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale-------	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Opequon-------------	40	Very severe		Severe		High	
		Slope	0.95	Slope	0.95	Texture	1.00
		Erodibility	0.95	Erodibility	0.95	Slope	1.00
						Surface depth	1.00
RgG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Rough---------------	45	Very severe		Severe		High	
		Slope	0.95	Slope	0.95	Texture	1.00
		Erodibility	0.95	Erodibility	0.95	Slope	1.00
						Surface depth	1.00
						Coarse fragments	1.00
RuD:							
Rushtown------------	90	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95	Texture	0.10
		Erodibility	0.50	Erodibility	0.95	Coarse fragments	0.10
RuF:							
Rushtown------------	85	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
ShC:							
Schaffenaker--------	80	Slight		Moderate		Low	
				Slope	0.50		
				Erodibility	0.50		
SkF:							
Schaffenaker--------	45	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Rock outcrop--------	40	Not rated		Not rated		Not rated	

Table 10b.--Forestland Management (Part 2)--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	Potential for damage to soil by fire: Rating class and limiting features	Value
SnE:							
Schaffenaker--------	45	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
Vanderlip-----------	40	Moderate		Moderate		Low	
		Slope	0.50	Slope	0.50		
		Erodibility	0.50	Erodibility	0.50		
SnF:							
Schaffenaker--------	40	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Vanderlip-----------	40	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
SxC:							
Sideling------------	85	Slight		Moderate		Low	
				Slope	0.50		
				Erodibility	0.50		
SxE:							
Sideling------------	80	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95		
		Erodibility	0.50	Erodibility	0.95		
SyE:							
Sideling------------	80	Moderate		Moderate		Low	
		Slope	0.50	Slope	0.50		
		Erodibility	0.50	Erodibility	0.50		
Ta:							
Tioga---------------	90	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
TyA:							
Tygart--------------	85	Slight		Slight		Low	
						Texture	0.10
						Coarse fragments	0.10
Ua:							
Udorthents----------	95	Slight		Slight		Low	
Uu:							
Urban Land----------	45	Not rated		Not rated		Not rated	
Udorthents----------	45	Slight		Moderate		Low	
				Slope	0.50		
				Erodibility	0.50		
WaB:							
Weikert-------------	85	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
WaC:							
Weikert-------------	85	Slight		Severe		Low	
				Slope	0.95	Texture	0.10
				Erodibility	0.95	Coarse fragments	0.10

Table 10b.--Forestland Management (Part 2)--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		Potential for damage to soil by fire	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WbC:							
Weikert-------------	45	Slight		Severe		Low	
				Slope	0.95	Texture	0.10
				Erodibility	0.95	Coarse fragments	0.10
Berks---------------	40	Slight		Moderate		Low	
				Slope	0.50	Texture	0.10
				Erodibility	0.50	Coarse fragments	0.10
WbD:							
Weikert-------------	50	Moderate		Severe		Moderate	
		Slope	0.50	Slope	0.95	Texture	0.50
		Erodibility	0.50	Erodibility	0.95	Surface depth	0.50
						Coarse fragments	0.50
Berks---------------	35	Moderate		Severe		Low	
		Slope	0.50	Slope	0.95	Texture	0.10
		Erodibility	0.50	Erodibility	0.95	Coarse fragments	0.10
WkF:							
Weikert-------------	50	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		
Berks---------------	35	Severe		Severe		Low	
		Slope	0.75	Slope	0.95		
		Erodibility	0.75	Erodibility	0.95		

Table 10c.--Forestland Management (Part 3)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Potential for seedling mortality: Rating class and limiting features	Value
AgB:							
Allegheny	80	Moderately suited		Moderately suited		Low	
		Rock fragments	0.03	Slope	0.05		
AgC:							
Allegheny	80	Moderately suited		Moderately suited		Low	
		Rock fragments	0.03	Slope	0.05		
AnB:							
Andover	75	Moderately suited		Moderately suited		High	
		Rock fragments	0.19	Rock fragments	0.05	Wetness	1.00
Ba:							
Basher	75	Moderately suited		Well suited		Low	
		Rock fragments	0.07				
BbC:							
Berks	80	Moderately suited		Moderately suited		Moderate	
		Rock fragments	0.24	Slope	0.20	Soil reaction	0.50
				Rock fragments	0.13		
BbE:							
Berks	75	Moderately suited		Unsuited		Moderate	
		Slope	0.38	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.24	Rock fragments	0.13	Available water	0.50
BcD:							
Berks	45	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.24	Slope	0.75	Available water	0.50
		Slope	0.19	Rock fragments	0.13		
Calvin	40	Moderately suited		Poorly suited		Moderate	
		Slope	0.19	Slope	0.75	Available water	0.50
		Rock fragments	0.17	Rock fragments	0.22		
BcE:							
Berks	50	Moderately suited		Unsuited		Moderate	
		Steep	0.56	Slope	1.00	Available water	0.50
		Rock fragments	0.24	Rock fragments	0.13		
Calvin	40	Moderately suited		Unsuited		Moderate	
		Steep	0.56	Slope	1.00	Available water	0.50
		Rock fragments	0.17	Rock fragments	0.22		
BcF:							
Berks	50	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Available water	0.50
		Rock fragments	0.24	Rock fragments	0.13		
Calvin	40	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Available water	0.50
		Rock fragments	0.17	Rock fragments	0.22		
BeB:							
Berks	50	Moderately suited		Moderately suited		Low	
		Rock fragments	0.24	Rock fragments	0.13		
				Slope	0.05		

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
BeB:							
Clearbrook----------	45	Moderately suited		Moderately suited		High	
		Rock fragments	0.35	Rock fragments	0.33	Wetness	1.00
				Slope	0.05		
BeC:							
Berks---------------	55	Moderately suited		Moderately suited		Low	
		Rock fragments	0.24	Slope	0.35		
				Rock fragments	0.13		
Clearbrook----------	40	Moderately suited		Moderately suited		High	
		Rock fragments	0.35	Slope	0.35	Wetness	1.00
				Rock fragments	0.33		
BkB:							
Berks---------------	45	Moderately suited		Moderately suited		Low	
		Rock fragments	0.24	Rock fragments	0.13		
				Slope	0.05		
Weikert-------------	40	Moderately suited		Moderately suited		Low	
		Rock fragments	0.22	Rock fragments	0.40		
		Restrictive layer	0.02	Slope	0.05		
				Restrictive layer	0.01		
BqF:							
Blackthorn----------	80	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.77	Slope	1.00	Soil reaction	0.50
		Steep	0.75	Rock fragments	1.00		
BrB:							
Brinkerton----------	85	Moderately suited		Moderately suited		High	
		Rock fragments	0.10	Slope	0.05	Wetness	1.00
BuB:							
Buchanan------------	85	Moderately suited		Moderately suited		Low	
		Rock fragments	0.10	Slope	0.05		
				Rock fragments	0.02		
BuC:							
Buchanan------------	85	Moderately suited		Moderately suited		Low	
		Rock fragments	0.10	Slope	0.35		
				Rock fragments	0.02		
BxC:							
Buchanan------------	85	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.54	Rock fragments	0.59	Soil reaction	0.50
				Slope	0.20		
BxE:							
Buchanan------------	85	Moderately suited		Unsuited		Moderate	
		Rock fragments	0.54	Slope	1.00	Soil reaction	0.50
		Slope	0.38	Rock fragments	0.59		
CbB:							
Calvin--------------	55	Moderately suited		Moderately suited		Low	
		Rock fragments	0.17	Rock fragments	0.11		
				Slope	0.05		
Berks---------------	35	Moderately suited		Moderately suited		Low	
		Rock fragments	0.24	Rock fragments	0.13		
				Slope	0.05		

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
CbC:							
Calvin---------------	50	Moderately suited		Moderately suited		Low	
		Rock fragments	0.17	Slope	0.35		
				Rock fragments	0.11		
Berks---------------	35	Moderately suited		Moderately suited		Low	
		Rock fragments	0.24	Slope	0.35		
				Rock fragments	0.13		
CkB:							
Calvin---------------	65	Moderately suited		Moderately suited		Low	
		Rock fragments	0.17	Rock fragments	0.11		
				Slope	0.05		
Klinesville---------	30	Moderately suited		Moderately suited		Low	
		Rock fragments	0.19	Rock fragments	0.29		
				Slope	0.05		
CkC:							
Calvin---------------	65	Moderately suited		Moderately suited		Low	
		Rock fragments	0.17	Slope	0.35		
				Rock fragments	0.11		
Klinesville---------	30	Moderately suited		Moderately suited		Low	
		Rock fragments	0.19	Slope	0.35		
				Rock fragments	0.29		
CkD:							
Calvin---------------	65	Moderately suited		Poorly suited		Moderate	
		Slope	0.19	Slope	0.75	Available water	0.50
		Rock fragments	0.17	Rock fragments	0.22		
Klinesville---------	30	Moderately suited		Poorly suited		Moderate	
		Slope	0.19	Slope	0.75	Available water	0.50
		Rock fragments	0.19	Rock fragments	0.29		
CkE:							
Calvin---------------	60	Moderately suited		Unsuited		Moderate	
		Steep	0.56	Slope	1.00	Available water	0.50
		Rock fragments	0.17	Rock fragments	0.22		
Klinesville---------	30	Moderately suited		Unsuited		Moderate	
		Steep	0.56	Slope	1.00	Available water	0.50
		Rock fragments	0.19	Rock fragments	0.29		
CkF:							
Calvin---------------	45	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Available water	0.50
		Rock fragments	0.17	Rock fragments	0.22		
Klinesville---------	30	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Available water	0.50
		Rock fragments	0.19	Rock fragments	0.29		
ClC:							
Caneyville----------	90	Moderately suited		Poorly suited		Low	
		Stickiness	0.75	Stickiness	0.75		
		Rock fragments	0.07	Slope	0.35		

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
ClD:							
Caneyville----------	85	Moderately suited		Poorly suited		Low	
		Stickiness	0.75	Stickiness	0.75		
		Slope	0.19	Slope	0.75		
		Rock fragments	0.07				
ClE:							
Caneyville----------	85	Moderately suited		Unsuited		Low	
		Stickiness	0.75	Slope	1.00		
		Steep	0.56	Stickiness	0.75		
		Rock fragments	0.07				
CnF:							
Caneyville----------	85	Moderately suited		Unsuited		Low	
		Steep	0.75	Slope	1.00		
		Stickiness	0.75	Stickiness	0.75		
		Rock fragments	0.07				
CrB:							
Clarksburg----------	80	Moderately suited		Moderately suited		Low	
		Rock fragments	0.14	Slope	0.05		
CrC:							
Clarksburg----------	80	Moderately suited		Moderately suited		Low	
		Rock fragments	0.14	Slope	0.35		
CvB:							
Clearbrook----------	50	Moderately suited		Moderately suited		High	
		Rock fragments	0.35	Rock fragments	0.33	Wetness	1.00
Cavode--------------	35	Moderately suited		Well suited		High	
		Rock fragments	0.07			Wetness	1.00
Cz:							
Combs---------------	85	Well suited		Well suited		Low	
DkC:							
Dekalb--------------	85	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.54	Rock fragments	0.59	Soil reaction	0.50
				Slope	0.20		
DrE:							
Dekalb--------------	70	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.77	Rock fragments	1.00	Soil reaction	0.50
		Slope	0.19	Slope	0.75	Available water	0.50
Rock outcrop--------	15	Not rated		Not rated		Not rated	
DsB:							
Downsville----------	85	Moderately suited		Moderately suited		Low	
		Rock fragments	0.19	Slope	0.05		
				Rock fragments	0.04		
DsC:							
Downsville----------	80	Moderately suited		Moderately suited		Low	
		Rock fragments	0.19	Slope	0.35		
				Rock fragments	0.04		
Dz:							
Dunning-------------	85	Moderately suited		Poorly suited		High	
		Stickiness	0.75	Stickiness	0.75	Wetness	1.00
		Rock fragments	0.07				

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
ErB:							
Ernest	85	Moderately suited		Moderately suited		Low	
		Rock fragments	0.17	Slope	0.05		
				Rock fragments	0.01		
ErC:							
Ernest	80	Moderately suited		Moderately suited		Low	
		Rock fragments	0.17	Slope	0.35		
				Rock fragments	0.01		
HaE:							
Hazleton	45	Moderately suited		Unsuited		Moderate	
		Rock fragments	0.54	Slope	1.00	Soil reaction	0.50
		Slope	0.38	Rock fragments	0.59		
Dekalb	40	Moderately suited		Unsuited		Moderate	
		Rock fragments	0.54	Slope	1.00	Soil reaction	0.50
		Slope	0.38	Rock fragments	0.59	Available water	0.50
HaF:							
Hazleton	55	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.54	Rock fragments	0.59		
Dekalb	25	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.54	Rock fragments	0.59	Available water	0.50
HdF:							
Hazleton	55	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.77	Slope	1.00	Soil reaction	0.50
		Steep	0.75	Rock fragments	1.00		
Dekalb	25	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.77	Slope	1.00	Soil reaction	0.50
		Steep	0.75	Rock fragments	1.00	Available water	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.89	Slope	1.00	Soil reaction	0.50
		Steep	0.75	Rock fragments	1.00		
Dekalb	25	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.89	Slope	1.00	Soil reaction	0.50
		Steep	0.75	Rock fragments	1.00	Available water	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.54	Rock fragments	0.59		
Lehew	20	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.54	Rock fragments	0.59	Available water	0.50
Dekalb	15	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.54	Rock fragments	0.59	Available water	0.50

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
Ho:							
Holly	80	Moderately suited		Well suited		High	
		Rock fragments	0.03			Wetness	1.00
HwB:							
Hustontown	85	Moderately suited		Moderately suited		Low	
		Rock fragments	0.10	Slope	0.05		
Ln:							
Lindside	80	Moderately suited		Well suited		Low	
		Rock fragments	0.01				
LzC:							
Litz	90	Moderately suited		Moderately suited		Moderate	
		Rock fragments	0.26	Slope	0.32	Soil reaction	0.50
				Rock fragments	0.18		
LzD:							
Litz	85	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.26	Slope	0.75	Soil reaction	0.50
		Slope	0.19	Rock fragments	0.18	Available water	0.50
LzE:							
Litz	80	Moderately suited		Unsuited		Moderate	
		Steep	0.56	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.26	Rock fragments	0.18	Available water	0.50
LzF:							
Litz	80	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.26	Rock fragments	0.18	Available water	0.50
Me:							
Melvin	90	Moderately suited		Well suited		High	
		Rock fragments	0.01			Wetness	1.00
MhA:							
Monongahela	80	Moderately suited		Well suited		Low	
		Rock fragments	0.14				
MhB:							
Monongahela	85	Moderately suited		Moderately suited		Low	
		Rock fragments	0.14	Slope	0.05		
MhC:							
Monongahela	80	Moderately suited		Moderately suited		Low	
		Rock fragments	0.14	Slope	0.35		
MrC:							
Murrill	90	Moderately suited		Moderately suited		Low	
		Rock fragments	0.14	Slope	0.35		
				Rock fragments	0.02		
MrD:							
Murrill	85	Moderately suited		Poorly suited		Low	
		Slope	0.19	Slope	0.75		
		Rock fragments	0.14	Rock fragments	0.02		
MsC:							
Murrill	85	Moderately suited		Poorly suited		Low	
		Rock fragments	0.54	Rock fragments	0.59		
				Slope	0.20		

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
MsE:							
Murrill-------------	85	Moderately suited		Unsuited		Low	
		Rock fragments	0.54	Slope	1.00		
		Slope	0.38	Rock fragments	0.59		
Pg:							
Philo---------------	75	Moderately suited		Well suited		Low	
		Rock fragments	0.07				
Ph:							
Philo---------------	75	Moderately suited		Well suited		Low	
		Rock fragments	0.07				
Ps:							
Pope----------------	90	Moderately suited		Well suited		Low	
		Rock fragments	0.03				
Px:							
Pope----------------	90	Moderately suited		Well suited		Low	
		Rock fragments	0.03				
Pz:							
Pope----------------	50	Moderately suited		Well suited		Low	
		Rock fragments	0.03				
Philo---------------	30	Moderately suited	0.07	Well suited		Low	
		Rock fragments	0.07				
Qm:							
Quarry, limestone---	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone---	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale-------	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Opequon-------------	40	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Available water	0.50
		Stickiness	0.56	Stickiness	0.56		
		Restrictive layer	0.41				
		Rock fragments	0.07				
RgG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Rough---------------	45	Poorly suited		Unsuited		High	
		Restrictive layer	0.88	Slope	1.00	Available water	1.00
		Steep	0.75	Rock fragments	0.33		
		Rock fragments	0.35				
RuD:							
Rushtown------------	90	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.22	Slope	0.75	Available water	0.50
		Slope	0.19	Rock fragments	0.38		

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
RuF:							
Rushtown------------	85	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Available water	0.50
		Rock fragments	0.22	Rock fragments	0.38		
ShC:							
Schaffenaker--------	80	Moderately suited		Moderately suited		Moderate	
		Rock fragments	0.21	Slope	0.20	Soil reaction	0.50
		Sandiness	0.06	Rock fragments	0.13		
				Sandiness	0.06		
SkF:							
Schaffenaker--------	45	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.78	Slope	1.00	Soil reaction	0.50
		Steep	0.75	Rock fragments	1.00	Available water	0.50
		Sandiness	0.06	Sandiness	0.06		
Rock outcrop--------	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker--------	45	Moderately suited		Unsuited		Moderate	
		Slope	0.38	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.21	Rock fragments	0.13	Available water	0.50
		Sandiness	0.06	Sandiness	0.06		
Vanderlip-----------	40	Moderately suited		Unsuited		Moderate	
		Rock fragments	0.42	Slope	1.00	Soil reaction	0.50
		Slope	0.38	Rock fragments	0.50	Available water	0.50
		Sandiness	0.16	Sandiness	0.16		
SnF:							
Schaffenaker--------	40	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.21	Rock fragments	0.13	Available water	0.50
		Sandiness	0.06	Sandiness	0.06		
Vanderlip-----------	40	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.42	Rock fragments	0.50	Available water	0.50
		Sandiness	0.16	Sandiness	0.16		
SxC:							
Sideling------------	85	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.54	Rock fragments	0.59	Soil reaction	0.50
				Slope	0.20		
SxE:							
Sideling------------	80	Moderately suited		Unsuited		Moderate	
		Rock fragments	0.54	Slope	1.00	Soil reaction	0.50
		Slope	0.38	Rock fragments	0.59		
SyE:							
Sideling------------	80	Poorly suited		Unsuited		Moderate	
		Rock fragments	0.77	Rock fragments	1.00	Soil reaction	0.50
		Slope	0.38	Slope	1.00		
Ta:							
Tioga---------------	90	Moderately suited		Well suited		Low	
		Rock fragments	0.01				

Table 10c.--Forestland Management (Part 3)--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	Potential for seedling mortality: Rating class and limiting features	Value
TyA:							
Tygart--------------	85	Moderately suited		Moderately suited		High	
		Stickiness	0.04	Stickiness	0.04	Wetness	1.00
		Rock fragments	0.01				
Ua:							
Udorthents----------	95	Well suited		Well suited		Moderate	
						Available water	0.50
Uu:							
Urban land----------	45	Not rated		Not rated		Not rated	
Udorthents----------	45	Well suited		Well suited		Moderate	
						Available water	0.50
WaB:							
Weikert-------------	85	Moderately suited		Moderately suited		Low	
		Rock fragments	0.22	Rock fragments	0.40		
		Restrictive layer	0.02	Slope	0.05		
				Restrictive layer	0.01		
WaC:							
Weikert-------------	85	Moderately suited	0.22	Moderately suited	0.40	Low	
		Rock fragments	0.22	Rock fragments	0.40		
		Restrictive layer	0.02	Slope	0.35		
				Restrictive layer	0.01		
WbC:							
Weikert-------------	45	Moderately suited		Moderately suited		Low	
		Rock fragments	0.22	Rock fragments	0.40		
		Restrictive layer	0.02	Slope	0.35		
				Restrictive layer	0.01		
Berks---------------	40	Moderately suited		Moderately suited		Low	
		Rock fragments	0.24	Slope	0.35		
				Rock fragments	0.13		
WbD:							
Weikert-------------	50	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.22	Slope	0.75	Available water	0.50
		Slope	0.19	Rock fragments	0.40		
		Restrictive layer	0.02	Restrictive layer	0.01		
Berks---------------	35	Moderately suited		Poorly suited		Moderate	
		Rock fragments	0.24	Slope	0.75	Available water	0.50
		Slope	0.19	Rock fragments	0.13		
WkF:							
Weikert-------------	50	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.26	Rock fragments	0.40	Available water	0.50
Berks---------------	35	Moderately suited		Unsuited		Moderate	
		Steep	0.75	Slope	1.00	Soil reaction	0.50
		Rock fragments	0.24	Rock fragments	0.13	Available water	0.50

Table 11a.--Recreational Development (Part 1)

(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
AgB:							
Allegheny	80	Not limited		Not limited		Very limited	
						Slope	1.00
AgC:							
Allegheny	80	Not limited		Not limited		Very limited	
						Slope	1.00
AnB:							
Andover	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Gravel content	1.00
		Gravel content	0.05	Gravel content	0.05	Restricted permeability	0.96
						Slope	0.50
Ba:							
Basher	75	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.35	Depth to saturated zone	0.67
		Depth to saturated zone	0.67	Too sandy	0.01	Flooding	0.60
		Too sandy	0.01			Too sandy	0.01
BbC:							
Berks	80	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.78	Gravel content	0.78	Gravel content	1.00
		Too stony	0.53	Too stony	0.53	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to bedrock	0.90
						Content of large stones	0.84
						Too stony	0.53
BbE:							
Berks	75	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	0.53	Too stony	0.53	Depth to bedrock	0.90
						Content of large stones	0.84
						Too stony	0.53
BcD:							
Berks	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.95
						Content of large stones	0.32
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03

Table 11a.--Recreational Development (Part 1)--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
BcE:							
Berks	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.95
						Content of large stones	0.32
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03
BcF:							
Berks	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.95
						Content of large stones	0.32
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03
BeB:							
Berks	50	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Slope	1.00
						Depth to bedrock	0.84
						Content of large stones	0.32
Clearbrook	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
						Gravel content	0.98
						Depth to bedrock	0.97
						Content of large stones	0.32
BeC:							
Berks	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.84
						Content of large stones	0.32
Clearbrook	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Gravel content	0.98
						Depth to bedrock	0.97
						Content of large stones	0.32

Table 11a.--Recreational Development (Part 1)--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
BkB:							
Berks	45	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Slope	1.00
						Depth to bedrock	0.84
						Content of large stones	0.32
Weikert	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.92	Gravel content	0.92	Depth to bedrock	1.00
						Slope	1.00
						Content of large stones	0.01
BqF:							
Blackthorn	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.50	Content of large stones	0.50	Content of large stones	1.00
						Gravel content	0.99
BrB:							
Brinkerton	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
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
						Restricted permeability	0.96
						Content of large stones	0.01
BuB:							
Buchanan	85	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Gravel content	1.00
		Gravel content	0.54	Gravel content	0.54	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Restricted permeability	0.96
						Depth to saturated zone	0.39
						Content of large stones	0.01
BuC:							
Buchanan	85	Somewhat limited		Somewhat limited		Very limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Slope	0.63	Slope	0.63	Gravel content	1.00
		Gravel content	0.54	Gravel content	0.54	Restricted permeability	0.96
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
						Content of large stones	0.01

Table 11a.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BxC:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Content of large stones	0.99
		Slope	0.04	Slope	0.04	Restricted permeability	0.96
		Content of large stones	0.01	Content of large stones	0.01	Gravel content	0.72
BxE:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Content of large stones	0.99
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Restricted permeability	0.96
		Content of large stones	0.01	Content of large stones	0.01	Gravel content	0.72
CbB:							
Calvin--------------	55	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03
Berks---------------	35	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Slope	1.00
						Depth to bedrock	0.95
						Content of large stones	0.32
CbC:							
Calvin--------------	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03
Berks---------------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.95
						Content of large stones	0.32
CkB:							
Calvin--------------	65	Not limited		Not limited		Very limited	
						Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03

Table 11a.--Recreational Development (Part 1)--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
CkB:							
Klinesville---------	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.54	Gravel content	0.54	Depth to bedrock	1.00
						Slope	1.00
						Content of large stones	0.01
CkC:							
Calvin--------------	65	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03
Klinesville---------	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Gravel content	0.54	Gravel content	0.54	Depth to bedrock	1.00
						Content of large stones	0.01
CkD:							
Calvin--------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.54	Gravel content	0.54	Depth to bedrock	1.00
						Content of large stones	0.01
CkE:							
Calvin--------------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.54	Gravel content	0.54	Depth to bedrock	1.00
						Content of large stones	0.01
CkF:							
Calvin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Gravel content	0.61
						Content of large stones	0.03

Table 11a.--Recreational Development (Part 1)--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
CkF:							
Klinesville	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.54	Gravel content	0.54	Depth to bedrock	1.00
						Content of large stones	0.01
ClC:							
Caneyville	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Depth to bedrock	0.90
						Restricted permeability	0.21
						Gravel content	0.04
ClD:							
Caneyville	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Depth to bedrock	0.90
						Restricted permeability	0.21
						Gravel content	0.04
ClE:							
Caneyville	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Depth to bedrock	0.90
						Restricted permeability	0.21
						Gravel content	0.04
CnF:							
Caneyville	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Depth to bedrock	0.90
						Restricted permeability	0.21
						Gravel content	0.04
CrB:							
Clarksburg	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.67	Restricted permeability	0.50	Slope	1.00
		Restricted permeability	0.50	Depth to saturated zone	0.35	Depth to saturated zone	0.67
						Gravel content	0.61
						Restricted permeability	0.50
						Content of large stones	0.03
CrC:							
Clarksburg	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.67	Slope	0.63	Slope	1.00
		Slope	0.63	Restricted permeability	0.50	Depth to saturated zone	0.67
		Restricted permeability	0.50	Depth to saturated zone	0.35	Gravel content	0.61
						Restricted permeability	0.50
						Content of large stones	0.03

Table 11a.--Recreational Development (Part 1)--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
CvB:							
Clearbrook	50	Very limited Depth to saturated zone Restricted permeability	 1.00 0.21	Very limited Depth to saturated zone Restricted permeability	 1.00 0.21	Very limited Depth to saturated zone Depth to bedrock Slope Restricted permeability Gravel content	 1.00 0.97 0.50 0.21 0.02
Cavode	35	Very limited Depth to saturated zone Restricted permeability	 1.00 0.96	Very limited Depth to saturated zone Restricted permeability	 1.00 0.96	Very limited Depth to saturated zone Restricted permeability Slope	 1.00 0.96 0.50
Cz:							
Combs	85	Very limited Flooding	 1.00	Not limited		Somewhat limited Flooding Gravel content	 0.60 0.06
DkC:							
Dekalb	85	Very limited Too stony Content of large stones Gravel content Slope	 1.00 0.42 0.19 0.04	Very limited Too stony Content of large stones Gravel content Slope	 1.00 0.42 0.19 0.04	Very limited Too stony Slope Gravel content Content of large stones Depth to bedrock	 1.00 1.00 1.00 1.00 0.90
DrE:							
Dekalb	70	Not rated		Not rated		Not rated	
Rock outcrop	15	Not rated		Not rated		Not rated	
DsB:							
Downsville	85	Somewhat limited Restricted permeability Gravel content	 0.21 0.11	Somewhat limited Restricted permeability Gravel content	 0.21 0.11	Very limited Gravel content Slope Restricted permeability Content of large stones	 1.00 1.00 0.21 0.01
DsC:							
Downsville	80	Somewhat limited Slope Restricted permeability Gravel content	 0.63 0.21 0.11	Somewhat limited Slope Restricted permeability Gravel content	 0.63 0.21 0.11	Very limited Slope Gravel content Restricted permeability Content of large stones	 1.00 1.00 0.21 0.01
Dz:							
Dunning	85	Very limited Depth to saturated zone Flooding Ponding Restricted permeability	 1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Restricted permeability	 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Restricted permeability Flooding	 1.00 1.00 1.00 0.60

Table 11a.--Recreational Development (Part 1)--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
ErB:							
Ernest	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
		Restricted permeability	0.43	Restricted permeability	0.43	Depth to saturated zone	0.98
						Restricted permeability	0.43
						Content of large stones	0.01
ErC:							
Ernest	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to saturated zone	0.98
		Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
						Content of large stones	0.01
HaE:							
Hazleton	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
Dekalb	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.42	Content of large stones	0.42	Gravel content	1.00
		Gravel content	0.19	Gravel content	0.19	Content of large stones	1.00
						Depth to bedrock	0.90
HaF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.42	Content of large stones	0.42	Gravel content	1.00
		Gravel content	0.19	Gravel content	0.19	Content of large stones	1.00
						Depth to bedrock	0.90
HdF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00

Table 11a.--Recreational Development (Part 1)--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
HdF:							
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.96	Content of large stones	0.96	Content of large stones	1.00
		Gravel content	0.19	Gravel content	0.19	Gravel content	1.00
						Depth to bedrock	0.90
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Gravel content	0.19	Gravel content	0.19	Gravel content	1.00
						Depth to bedrock	0.90
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	1.00
		Gravel content	0.01	Gravel content	0.01	Gravel content	1.00
Lehew	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.14	Content of large stones	0.14	Gravel content	1.00
		Gravel content	0.11	Gravel content	0.11	Content of large stones	1.00
						Depth to bedrock	0.08
Dekalb	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.42	Content of large stones	0.42	Gravel content	1.00
		Gravel content	0.19	Gravel content	0.19	Content of large stones	1.00
						Depth to bedrock	0.90
Ho:							
Holly	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00

Table 11a.--Recreational Development (Part 1)--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
HwB:							
Hustontown----------	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.98	Depth to saturated zone	0.75	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Depth to saturated zone	0.98
						Restricted permeability	0.21
						Gravel content	0.03
						Content of large stones	0.01
Ln:							
Lindside------------	80	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
LzC:							
Litz----------------	90	Somewhat limited		Somewhat limited		Very limited	
		Gravel content	0.61	Gravel content	0.61	Slope	1.00
		Slope	0.50	Slope	0.50	Gravel content	1.00
						Content of large stones	0.54
						Depth to bedrock	0.35
LzD:							
Litz----------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.61	Gravel content	0.61	Gravel content	1.00
						Content of large stones	0.54
						Depth to bedrock	0.35
LzE:							
Litz----------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.61	Gravel content	0.61	Gravel content	1.00
						Content of large stones	0.54
						Depth to bedrock	0.35
LzF:							
Litz----------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.61	Gravel content	0.61	Gravel content	1.00
						Content of large stones	0.54
						Depth to bedrock	0.35
Me:							
Melvin--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
MhA:							
Monongahela---------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	0.48	Depth to saturated zone	0.81
		Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43

Table 11a.--Recreational Development (Part 1)--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
MhB:							
Monongahela---------	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.81	Depth to saturated zone	0.48	Slope	1.00
		Restricted permeability	0.43	Restricted permeability	0.43	Depth to saturated zone	0.81
						Restricted permeability	0.43
MhC:							
Monongahela---------	80	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.81	Slope	0.63	Slope	1.00
		Slope	0.63	Depth to saturated zone	0.48	Depth to saturated zone	0.81
		Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
MrC:							
Murrill-------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Gravel content	1.00
		Gravel content	0.41	Gravel content	0.41	Slope	1.00
MrD:							
Murrill-------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.41	Gravel content	0.41	Slope	1.00
MsC:							
Murrill-------------	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
						Gravel content	0.37
						Content of large stones	0.01
MsE:							
Murrill-------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
						Gravel content	0.37
						Content of large stones	0.01
Pg:							
Philo---------------	75	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Gravel content	0.14	Gravel content	1.00
		Gravel content	0.14	Depth to saturated zone	0.03	Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
Ph:							
Philo---------------	75	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.03	Flooding	0.60
		Depth to saturated zone	0.07			Depth to saturated zone	0.07
Ps:							
Pope----------------	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
						Gravel content	0.06

Table 11a.--Recreational Development (Part 1)--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
Px:							
Pope	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
						Gravel content	0.06
Pz:							
Pope	50	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
						Gravel content	0.06
Philo	30	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Qm:							
Quarry, limestone	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Opequon	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
		Gravel content	0.05	Gravel content	0.05	Gravel content	1.00
RgG:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rough	45	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
		Gravel content	0.70	Gravel content	0.70	Gravel content	1.00
						Content of large stones	0.32
RuD:							
Rushtown	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.98	Gravel content	0.98	Slope	1.00
RuF:							
Rushtown	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	0.98	Gravel content	0.98	Slope	1.00
ShC:							
Schaffenaker	80	Somewhat limited		Somewhat limited		Very limited	
		Too stony	0.81	Too stony	0.81	Slope	1.00
		Too sandy	0.59	Too sandy	0.59	Depth to bedrock	0.90
		Slope	0.04	Slope	0.04	Content of large stones	0.84
						Too stony	0.81
						Too sandy	0.59

Table 11a.--Recreational Development (Part 1)--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
SkF:							
Schaffenaker--------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Too sandy	0.59	Too sandy	0.59	Depth to bedrock	0.90
						Content of large stones	0.84
						Too sandy	0.59
Rock outcrop--------	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker--------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.81	Too stony	0.81	Depth to bedrock	0.90
		Too sandy	0.59	Too sandy	0.59	Content of large stones	0.84
						Too stony	0.81
						Too sandy	0.59
Vanderlip-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.82	Too sandy	0.82	Content of large stones	0.97
		Too stony	0.81	Too stony	0.81	Too sandy	0.82
		Content of large stones	0.01	Content of large stones	0.01	Too stony	0.81
SnF:							
Schaffenaker--------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.81	Too stony	0.81	Depth to bedrock	0.90
		Too sandy	0.59	Too sandy	0.59	Content of large stones	0.84
						Too stony	0.81
						Too sandy	0.59
Vanderlip-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.82	Too sandy	0.82	Content of large stones	0.97
		Too stony	0.81	Too stony	0.81	Too sandy	0.82
		Content of large stones	0.01	Content of large stones	0.01	Too stony	0.81
SxC:							
Sideling------------	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Gravel content	1.00
						Slope	1.00
		Gravel content	0.36	Gravel content	0.36	Restricted permeability	0.96
		Slope	0.04	Slope	0.04	Content of large stones	0.32
SxE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Gravel content	1.00
						Restricted permeability	0.96
		Gravel content	0.36	Gravel content	0.36	Content of large stones	0.32

Table 11a.--Recreational Development (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SyE:							
Sideling	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Restricted permeability	0.96	Restricted permeability	0.96	Content of large stones	1.00
		Content of large stones	0.96	Content of large stones	0.96	Gravel content	1.00
		Gravel content	0.36	Gravel content	0.36	Restricted permeability	0.96
Ta:							
Tioga	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
TyA:							
Tygart	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
		Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
Ua:							
Udorthents	95	Not rated		Not rated		Not rated	
Uu:							
Urban land	45	Not rated		Not rated		Not rated	
Udorthents	45	Not rated		Not rated		Not rated	
WaB:							
Weikert	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.92	Gravel content	0.92	Depth to bedrock	1.00
						Slope	1.00
						Content of large stones	0.01
WaC:							
Weikert	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.92	Gravel content	0.92	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to bedrock	1.00
						Content of large stones	0.01
WbC:							
Weikert	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Gravel content	1.00
		Gravel content	0.92	Gravel content	0.92	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to bedrock	1.00
						Content of large stones	0.01
Berks	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.84
						Content of large stones	0.32

Table 11a.--Recreational Development (Part 1)--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
WbD:							
Weikert	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.92	Gravel content	0.92	Depth to bedrock	1.00
						Content of large stones	0.01
Berks	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.95
						Content of large stones	0.32
WkF:							
Weikert	50	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
		Gravel content	0.84	Gravel content	0.84	Gravel content	1.00
						Content of large stones	0.54
Berks	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.70	Gravel content	0.70	Gravel content	1.00
						Depth to bedrock	0.84
						Content of large stones	0.32

Table 11b.--Recreational Development (Part 2)

(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
AgB:							
Allegheny	80	Not limited		Not limited		Not limited	
AgC:							
Allegheny	80	Not limited		Not limited		Not limited	
AnB:							
Andover	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Gravel content	0.05
						Droughty	0.02
Ba:							
Basher	75	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Flooding	0.60
		Too sandy	0.01	Too sandy	0.01	Depth to saturated zone	0.35
BbC:							
Berks	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too stony	0.53	Too stony	0.53	Droughty	0.91
						Depth to bedrock	0.90
						Content of large stones	0.84
						Gravel content	0.78
						Slope	0.04
BbE:							
Berks	75	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too stony	0.53	Slope	1.00
		Too stony	0.53			Droughty	0.91
						Depth to bedrock	0.90
						Content of large stones	0.84
						Gravel content	0.78
BcD:							
Berks	45	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Droughty	1.00
						Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
Calvin	40	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03

Table 11b.--Recreational Development (Part 2)--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
BcE:							
Berks	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Droughty	1.00
						Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
Calvin	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03
BcF:							
Berks	50	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	0.39
						Content of large stones	0.32
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03
BeB:							
Berks	50	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.84
						Gravel content	0.39
						Content of large stones	0.32
Clearbrook	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Droughty	0.98
						Depth to bedrock	0.97
						Content of large stones	0.32
BeC:							
Berks	55	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.84
						Slope	0.63
						Gravel content	0.39
						Content of large stones	0.32

Table 11b.--Recreational Development (Part 2)--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
BeC:							
Clearbrook----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Droughty	0.98
						Depth to bedrock	0.97
						Slope	0.63
						Content of large stones	0.32
BkB:							
Berks---------------	45	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.84
						Gravel content	0.39
						Content of large stones	0.32
Weikert-------------	40	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.92
						Content of large stones	0.01
BqF:							
Blackthorn----------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.50	Content of large stones	0.50		
BrB:							
Brinkerton----------	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
						Content of large stones	0.01
BuB:							
Buchanan------------	85	Not limited		Not limited		Somewhat limited	
						Gravel content	0.54
						Depth to saturated zone	0.19
						Content of large stones	0.01
BuC:							
Buchanan------------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Gravel content	0.54
						Depth to saturated zone	0.19
						Content of large stones	0.01

Table 11b.--Recreational Development (Part 2)--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
BxC:							
Buchanan------------	85	Very limited		Very limited		Somewhat limited	
		Too stony	1.00	Too stony	1.00	Content of large stones	0.99
		Content of large stones	0.01	Content of large stones	0.01	Depth to saturated zone	0.19
						Slope	0.04
BxE:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Slope	1.00	Content of large stones	0.01	Content of large stones	0.99
		Content of large stones	0.01			Depth to saturated zone	0.19
CbB:							
Calvin--------------	55	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03
Berks---------------	35	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
CbC:							
Calvin--------------	50	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
						Slope	0.63
						Droughty	0.57
						Content of large stones	0.03
Berks---------------	35	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.95
						Slope	0.63
						Gravel content	0.39
						Content of large stones	0.32
CkB:							
Calvin--------------	65	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01

Table 11b.--Recreational Development (Part 2)--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
CkC:							
Calvin--------------	65	Not limited		Not limited		Somewhat limited	
						Depth to bedrock	0.80
						Slope	0.63
						Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Slope	0.63
						Gravel content	0.54
						Content of large stones	0.01
CkD:							
Calvin--------------	65	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01
CkE:							
Calvin--------------	60	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01
CkF:							
Calvin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.80
						Droughty	0.57
						Content of large stones	0.03

Table 11b.--Recreational Development (Part 2)--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
CkF:							
Klinesville	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01
ClC:							
Caneyville	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to bedrock	0.90
						Slope	0.63
						Droughty	0.01
ClD:							
Caneyville	85	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.50			Depth to bedrock	0.90
						Droughty	0.01
ClE:							
Caneyville	85	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22	Depth to bedrock	0.90
						Droughty	0.01
CnF:							
Caneyville	85	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	1.00	Depth to bedrock	0.90
						Droughty	0.02
CrB:							
Clarksburg	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Depth to saturated zone	0.35
						Content of large stones	0.03
CrC:							
Clarksburg	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.04	Depth to saturated zone	0.04	Slope	0.63
						Depth to saturated zone	0.35
						Content of large stones	0.03
CvB:							
Clearbrook	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
						Depth to bedrock	0.97
						Droughty	0.79
						Content of large stones	0.01
Cavode	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 11b.--Recreational Development (Part 2)--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
Cz:							
Combs	85	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
DkC:							
Dekalb	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Content of large stones	1.00
		Content of large stones	0.42	Content of large stones	0.42	Depth to bedrock	0.90
						Droughty	0.73
						Gravel content	0.19
						Slope	0.04
DrE:							
Dekalb	70	Not rated		Not rated		Not rated	
Rock outcrop	15	Not rated		Not rated		Not rated	
DsB:							
Downsville	85	Not limited		Not limited		Somewhat limited	
						Gravel content	0.11
						Content of large stones	0.01
DsC:							
Downsville	80	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Gravel content	0.11
						Content of large stones	0.01
Dz:							
Dunning	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.oo	Depth to saturated zone	1.00
						Flooding	0.60
ErB:							
Ernest	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
						Content of large stones	0.01
ErC:							
Ernest	80	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Slope	0.63
						Content of large stones	0.01
HaE:							
Hazleton	45	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Slope	1.00	Content of large stones	0.42	Content of large stones	1.00
		Content of large stones	0.42			Gravel content	0.01

Table 11b.--Recreational Development (Part 2)--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
HaE:							
Dekalb	40	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Slope	1.00	Content of large stones	0.42	Content of large stones	1.00
		Content of large stones	0.42			Depth to bedrock	0.90
						Droughty	0.73
						Gravel content	0.19
HaF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.42	Content of large stones	0.42	Gravel content	0.01
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.42	Content of large stones	0.42	Depth to bedrock	0.90
						Droughty	0.73
						Gravel content	0.19
HdF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large	1.00
		Content of large stones	1.00	Content of large stones	1.00	stones	0.01
						Gravel content	0.01
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.96	Content of large stones	0.96	Depth to bedrock	0.90
						Droughty	0.73
						Gravel content	0.19
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Gravel content	0.01
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Depth to bedrock	0.90
						Droughty	0.73
						Gravel content	0.19
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 11b.--Recreational Development (Part 2)--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
HlF:							
Hazleton------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.42	Content of large stones	0.42	Gravel content	0.01
Lehew---------------	20	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.14	Content of large stones	0.14	Droughty	0.33
						Gravel content	0.11
						Depth to bedrock	0.08
Dekalb--------------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.42	Content of large stones	0.42	Depth to bedrock	0.90
						Droughty	0.73
						Gravel content	0.19
Ho:							
Holly---------------	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
						Flooding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40		
HwB:							
Hustontown----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
						Content of large stones	0.01
Ln:							
Lindside------------	80	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Depth to saturated zone	0.03
LzC:							
Litz----------------	90	Not limited		Not limited		Somewhat limited	
						Gravel content	0.61
						Content of large stones	0.54
						Slope	0.50
						Depth to bedrock	0.35
LzD:							
Litz----------------	85	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Gravel content	0.61
						Content of large stones	0.54
						Depth to bedrock	0.35

Table 11b.--Recreational Development (Part 2)--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
LzE:							
Litz----------------	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.22	Slope	1.00
						Gravel content	0.61
						Content of large stones	0.54
						Depth to bedrock	0.35
LzF:							
Litz----------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.61
						Content of large stones	0.54
						Depth to bedrock	0.35
Me:							
Melvin--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
MhA:							
Monongahela---------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
MhB:							
Monongahela---------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
MhC:							
Monongahela---------	80	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.63
		Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
MrC:							
Murrill-------------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.63
						Gravel content	0.41
MrD:							
Murrill-------------	85	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Gravel content	0.41
MsC:							
Murrill-------------	85	Very limited		Very limited		Somewhat limited	
		Too stony	1.00	Too stony	1.00	Slope	0.04
						Content of large stones	0.01
MsE:							
Murrill-------------	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Slope	1.00			Content of large stones	0.01

Table 11b.--Recreational Development (Part 2)--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
Pg:							
Philo	75	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Gravel content	0.14
						Depth to saturated zone	0.03
Ph:							
Philo	75	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Depth to saturated zone	0.03
Ps:							
Pope	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
Px:							
Pope	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
Pz:							
Pope	50	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
Philo	30	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
						Depth to saturated zone	0.19
Qm:							
Quarry, limestone	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Opequon	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
						Droughty	0.99
						Gravel content	0.05
RgG:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Rough	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
						Gravel content	0.70
						Content of large stones	0.32

Table 11b.--Recreational Development (Part 2)--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
RuD:							
Rushtown	90	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Gravel content	0.98
RuF:							
Rushtown	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.98
ShC:							
Schaffenaker	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Too stony	0.81	Too stony	0.81	Droughty	0.99
		Too sandy	0.59	Too sandy	0.59	Depth to bedrock	0.90
						Content of large stones	0.84
						Slope	0.04
SkF:							
Schaffenaker	45	Very limited		Very limited		Very limited	
		Slope	1.00	Too stony	1.00	Slope	1.00
		Too stony	1.00	Slope	1.00	Droughty	0.99
		Too sandy	0.59	Too sandy	0.59	Depth to bedrock	0.90
						Content of large stones	0.84
Rock outcrop	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too stony	0.81	Slope	1.00
		Too stony	0.81	Too sandy	0.59	Droughty	0.99
		Too sandy	0.59			Depth to bedrock	0.90
						Content of large stones	0.84
Vanderlip	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Too sandy	0.82	Slope	1.00
		Too sandy	0.82	Too stony	0.81	Content of large stones	0.97
		Too stony	0.81	Content of large stones	0.01		
		Content of large stones	0.01				
SnF:							
Schaffenaker	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.81	Too stony	0.81	Droughty	0.99
		Too sandy	0.59	Too sandy	0.59	Depth to bedrock	0.90
						Content of large stones	0.84
Vanderlip	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too sandy	0.82	Too sandy	0.82	Content of large stones	0.97
		Too stony	0.81	Too stony	0.81		
		Content of large stones	0.01	Content of large stones	0.01		

Table 11b.--Recreational Development (Part 2)--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
SxC:							
Sideling------------	85	Very limited		Very limited		Somewhat limited	
		Too stony	1.00	Too stony	1.00	Gravel content	0.36
						Content of large stones	0.32
						Slope	0.04
SxE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Slope	1.00			Gravel content	0.36
						Content of large stones	0.32
SyE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Slope	1.00	Content of large stones	0.96	Content of large stones	1.00
		Content of large stones	0.96			Gravel content	0.36
Ta:							
Tioga---------------	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
TyA:							
Tygart--------------	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
Ua:							
Udorthents----------	95	Not rated		Not rated		Not rated	
Uu:							
Urban land----------	45	Not rated		Not rated		Not rated	
Udorthents----------	45	Not rated		Not rated		Not rated	
WaB:							
Weikert-------------	85	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.92
						Content of large stones	0.01
WaC:							
Weikert-------------	85	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.92
						Slope	0.63
						Content of large stones	0.01

Table 11b.--Recreational Development (Part 2)--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
WbC:							
Weikert	45	Not limited		Not limited		Very limited	
						Depth to bedrock	1.00
						Droughty	1.00
						Gravel content	0.92
						Slope	0.63
						Content of large stones	0.01
Berks	40	Not limited		Not limited		Very limited	
						Droughty	1.00
						Depth to bedrock	0.84
						Slope	0.63
						Gravel content	0.39
						Content of large stones	0.32
WbD:							
Weikert	50	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
						Gravel content	0.92
						Content of large stones	0.01
Berks	35	Somewhat limited		Not limited		Very limited	
		Slope	0.50			Slope	1.00
						Droughty	1.00
						Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
WkF:							
Weikert	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
						Slope	1.00
						Droughty	1.00
						Gravel content	0.84
						Content of large stones	0.54
Berks	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.87
						Depth to bedrock	0.84
						Gravel content	0.70
						Content of large stones	0.32

Table 12.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol snd soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AgB:										
Allegheny----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AgC:										
Allegheny----------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AnB:										
Andover------------	Poor	Fair	Good	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
Ba:										
Basher-------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
BbC:										
Berks--------------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
BbE:										
Berks--------------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
BcD:										
Berks--------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Calvin-------------	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
BcE:										
Berks--------------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Calvin-------------	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
BcF:										
Berks--------------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Calvin-------------	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
BeB:										
Berks--------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Clearbrook---------	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Fair	Poor	Poor
BeC:										
Berks--------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Clearbrook---------	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Fair	Poor	Poor

Table 12.--Wildlife Habitat--Continued

Map symbol snd soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
BkB:										
Berks	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Weikert	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
BqF:										
Blackthorn	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
BrB:										
Brinkerton	Poor	Fair	Good	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
BuB:										
Buchanan	Fair	Good	Good	Good	---	Poor	Very poor	Good	Good	Very poor
BuC:										
Buchanan	Fair	Good	Good	Good	---	Very poor	Very poor	Good	Good	Very poor
BxC:										
Buchanan	Very poor	Very poor	Good	Good	---	Poor	Very poor	Poor	Fair	Very poor
BxE:										
Buchanan	Very poor	Very poor	Good	Good	---	Poor	Very poor	Poor	Fair	Very poor
CbB:										
Calvin	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
Berks	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
CbC:										
Calvin	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Berks	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
CkB:										
Calvin	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
Klinesville	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
CkC:										
Calvin	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Klinesville	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor

Table 12.--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
CkD:										
Calvin	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Klinesville	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
CkE:										
Calvin	Very poor	Fair	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Klinesville	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
CkF:										
Calvin	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Klinesville	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
ClC:										
Caneyville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ClD:										
Caneyville	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ClE:										
Caneyville	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
CnF:										
Caneyville	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
CrB:										
Clarksburg	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CrC:										
Clarksburg	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CvB:										
Clearbrook	Poor	Fair	Fair	Poor	Poor	Poor	Very poor	Fair	Poor	Poor
Cavode	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Cz:										
Combs	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Very poor
DkC:										
Dekalb	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol snd soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
DrE:										
Dekalb	Very poor	Very poor	Good	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
DsB:										
Downsville	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
DsC:										
Downsville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Dz:										
Dunning	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
ErB:										
Ernest	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
ErC:										
Ernest	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
HaE:										
Hazleton	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Dekalb	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
HaF:										
Hazleton	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Dekalb	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
HdF:										
Hazleton	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Dekalb	Very poor	Very poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
HeF:										
Hazleton	Very poor	Very poor	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Dekalb	Very poor	Very poor	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Poor	Very poor
Rock outcrop	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol snd soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
HlF:										
Hazleton	Very poor	Very poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Lehew	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Dekalb	Very poor	Very poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Ho:										
Holly	Fair	Fair	Poor	Fair	Fair	Good	Good	Fair	Fair	Good
HwB:										
Hustontown	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Ln:										
Lindside	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LzC:										
Litz	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
LzD:										
Litz	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
LzE:										
Litz	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
LzF:										
Litz	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Me:										
Melvin	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
MhA:										
Monongahela	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
MhB:										
Monongahela	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MhC:										
Monongahela	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MrC:										
Murrill	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MrD:										
Murrill	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol snd soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
MsC:										
Murrill------------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
MsE:										
Murrill------------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Pg:										
Philo--------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Ph:										
Philo--------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Ps:										
Pope---------------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Px:										
Pope---------------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Pz:										
Pope---------------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Philo--------------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Qm:										
Quarry, limestone--	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Qo:										
Quarry, sandstone--	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Qs:										
Quarry, shale------	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
ReG:										
Rock outcrop-------	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Opequon------------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
RgG:										
Rock outcrop-------	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Rough--------------	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
RuD:										
Rushtown-----------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
RuF:										
Rushtown-----------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol snd soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
ShC:										
Schaffenaker-------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
SkF:										
Schaffenaker-------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Rock outcrop-------	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
SnE:										
Schaffenaker-------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Vanderlip----------	Very poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
SnF:										
Schaffenaker-------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Vanderlip----------	Very poor	Poor	Poor	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
SxC:										
Sideling-----------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
SxE:										
Sideling-----------	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
SyE:										
Sideling-----------	Very poor	Poor	Poor	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Ta:										
Tioga--------------	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TyA:										
Tygart-------------	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Ua:										
Udorthents.										
Uu:										
Urban land.										
Udorthents.										
WaB:										
Weikert------------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
WaC:										
Weikert------------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor

Table 12.--Wildlife Habitat--Continued

Map symbol snd soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
WbC:										
Weikert------------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Berks--------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
WbD:										
Weikert------------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Berks--------------	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
WkF:										
Weikert------------	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
Berks--------------	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor

Table 13a.--Building Site Development (Part 1)

(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
AgB:							
Allegheny-----------	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
AgC:							
Allegheny-----------	80	Not limited		Not limited		Somewhat limited	
						Slope	0.50
AnB:							
Andover-------------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ba:							
Basher--------------	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.67	Depth to saturated zone	1.00	Depth to saturated zone	0.67
BbC:							
Berks---------------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to soft bedrock	0.90	Slope	1.00
				Slope	0.04		
BbE:							
Berks---------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.90		
BcD:							
Berks---------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95		
Calvin--------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
BcE:							
Berks---------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95		
Calvin--------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		

Table 13a.--Building Site Development (Part 1)--Continued

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
BcF:							
Berks---------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95		
Calvin--------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
BeB:							
Berks---------------	50	Not limited		Somewhat limited		Somewhat limited	
				Depth to soft bedrock	0.84	Slope	0.50
Clearbrook----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.97	Slope	0.50
		Content of large stones	0.02	Shrink-swell	0.50	Shrink-swell	0.50
				Content of large stones	0.02	Content of large stones	0.02
BeC:							
Berks---------------	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Depth to soft bedrock	0.84	Slope	1.00
				Slope	0.63		
Clearbrook----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.63	Depth to soft bedrock	0.97	Depth to saturated zone	1.00
		Shrink-swell	0.50	Slope	0.63	Shrink-swell	0.50
		Content of large stones	0.02	Shrink-swell	0.50	Content of large stones	0.02
				Content of large stones	0.02		
BkB:							
Berks---------------	45	Not limited		Somewhat limited		Somewhat limited	
				Depth to soft bedrock	0.84	Slope	0.50
Weikert-------------	40	Somewhat limited		Very limited		Somewhat limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
						Slope	0.50
BqF:							
Blackthorn----------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
BrB:							
Brinkerton----------	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
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
						Shrink-swell	0.50

Table 13a.--Building Site Development (Part 1)--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
BuB:							
Buchanan	85	Somewhat limited Depth to saturated zone	 0.39	Very limited Depth to saturated zone	 1.00	Somewhat limited Slope Depth to saturated zone	 0.50 0.39
BuC:							
Buchanan	85	Somewhat limited Slope Depth to saturated zone	 0.63 0.39	Very limited Depth to saturated zone Slope	 1.00 0.63	Very limited Slope Depth to saturated zone	 1.00 0.39
BxC:							
Buchanan	85	Somewhat limited Depth to saturated zone Slope	 0.39 0.04	Very limited Depth to saturated zone Slope	 1.00 0.04	Very limited Slope Depth to saturated zone	 1.00 0.39
BxE:							
Buchanan	85	Very limited Slope Depth to saturated zone	 1.00 0.39	Very limited Slope Depth to saturated zone	 1.00 1.00	Very limited Slope Depth to saturated zone	 1.00 0.39
CbB:							
Calvin	55	Not limited		Somewhat limited Depth to soft bedrock	 0.79	Somewhat limited Slope	 0.50
Berks	35	Not limited		Somewhat limited Depth to soft bedrock	 0.95	Somewhat limited Slope	 0.50
CbC:							
Calvin	50	Somewhat limited Slope	 0.63	Somewhat limited Depth to soft bedrock Slope	 0.79 0.63	Very limited Slope	 1.00
Berks	35	Somewhat limited Slope	 0.63	Somewhat limited Depth to soft bedrock Slope	 0.95 0.63	Very limited Slope	 1.00
CkB:							
Calvin	65	Not limited		Somewhat limited Depth to soft bedrock	 0.79	Somewhat limited Slope	 0.50
Klinesville	30	Somewhat limited Depth to soft bedrock	 1.00	Very limited Depth to soft bedrock	 1.00	Somewhat limited Depth to soft bedrock Slope	 1.00 0.50
CkC:							
Calvin	65	Somewhat limited Slope	 0.63	Somewhat limited Depth to soft bedrock Slope	 0.79 0.63	Very limited Slope	 1.00

Table 13a.--Building Site Development (Part 1)--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
CkC:							
Klinesville---------	30	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to soft bedrock	1.00
CkD:							
Calvin--------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
CkE:							
Calvin--------------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
CkF:							
Calvin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.79		
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
ClC:							
Caneyville----------	90	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
ClD:							
Caneyville----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
ClE:							
Caneyville----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 13a.--Building Site Development (Part 1)--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
CnF:							
Caneyville----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CrB:							
Clarksburg----------	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.67	Depth to saturated zone	1.00	Depth to saturated zone	0.67
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
						Shrink-swell	0.50
CrC:							
Clarksburg----------	80	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.67	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to saturated zone	0.67
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CvB:							
Clearbrook----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.97	Shrink-swell	0.50
				Shrink-swell	0.50		
Cavode--------------	35	Very limited		Very limited		Very limited	
		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
Cz:							
Combs---------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.35		
DkC:							
Dekalb--------------	85	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to hard bedrock	0.90
		Content of large stones	0.02	Content of large stones	0.02	Content of large stones	0.02
DrE:							
Dekalb--------------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
Rock outcrop--------	15	Not rated		Not rated		Not rated	
DsB:							
Downsville----------	85	Not limited		Not limited		Somewhat limited	
						Slope	0.50

Table 13a.--Building Site Development (Part 1)--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
DsC:							
Downsville----------	80	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
Dz:							
Dunning-------------	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
ErB:							
Ernest--------------	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.50
						Shrink-swell	0.50
ErC:							
Ernest--------------	80	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to saturated zone	0.98
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
HaE:							
Hazleton------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.05	Content of large stones	0.05	Content of large stones	0.05
Dekalb--------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Content of large stones	0.02	Content of large stones	0.02	Content of large stones	0.02
HaF:							
Hazleton------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.05	Content of large stones	0.05	Content of large stones	0.05
Dekalb--------------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Content of large stones	0.02	Content of large stones	0.02	Content of large stones	0.02
HdF:							
Hazleton------------	55	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

Table 13a.--Building Site Development (Part 1)--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
HdF:							
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Content of large stones	0.03	Content of large stones	0.03	Content of large stones	0.03
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.17	Content of large stones	0.17	Content of large stones	0.17
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Content of large stones	0.08	Content of large stones	0.08	Content of large stones	0.08
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.05	Content of large stones	0.05	Content of large stones	0.05
Lehew	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.08	Depth to hard bedrock	1.00	Depth to hard bedrock	0.08
Dekalb	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
		Content of large stones	0.02	Content of large stones	0.02	Content of large stones	0.02
Ho:							
Holly	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
HwB:							
Hustontown	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
						Slope	0.50
Ln:							
Lindside	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07

Table 13a.--Building Site Development (Part 1)--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
LzC:							
Litz----------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Slope	0.50	Slope	1.00
				Depth to soft bedrock	0.35		
LzD:							
Litz----------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.35		
LzE:							
Litz----------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.35		
LzF:							
Litz----------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.35		
Me:							
Melvin--------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MhA:							
Monongahela---------	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
MhB:							
Monongahela---------	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
						Slope	0.50
MhC:							
Monongahela---------	80	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to saturated zone	0.81
MrC:							
Murrill-------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Slope	1.00
MrD:							
Murrill-------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
MsC:							
Murrill-------------	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Slope	1.00

Table 13a.--Building Site Development (Part 1)--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
MsE:							
Murrill	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Pg:							
Philo	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
Ph:							
Philo	75	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
Ps:							
Pope	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.35		
Px:							
Pope	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.35		
Pz:							
Pope	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.61		
Philo	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Qm:							
Quarry, limestone	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Opequon	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
RgG:							
Rock outcrop	50	Not rated		Not rated		Not rated	

Table 13a.--Building Site Development (Part 1)--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
RgG:							
Rough	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
RuD:							
Rushtown	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
RuF:							
Rushtown	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
ShC:							
Schaffenaker	80	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Slope	1.00
		Slope	0.04	Slope	0.04	Depth to hard bedrock	0.90
SkF:							
Schaffenaker	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
Rock outcrop	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
Vanderlip	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
SnF:							
Schaffenaker	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Depth to hard bedrock	0.90
Vanderlip	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
SxC:							
Sideling	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Depth to saturated zone	0.97	Slope	1.00
				Slope	0.04		
SxE:							
Sideling	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.97		

Table 13a.--Building Site Development (Part 1)--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
SyE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to saturated zone	0.97		
Ta:							
Tioga---------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.35		
TyA:							
Tygart--------------	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
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Ua:							
Udorthents----------	95	Not limited		Not limited		Not limited	
Uu:							
Urban land----------	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Udorthents----------	45	Not limited		Not limited		Somewhat limited	
						Slope	0.12
WaB:							
Weikert-------------	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
						Slope	0.50
WaC:							
Weikert-------------	85	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to soft bedrock	1.00
WbC:							
Weikert-------------	45	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Slope	0.63	Slope	0.63	Depth to soft bedrock	1.00
Berks---------------	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Depth to soft bedrock	0.84	Slope	1.00
				Slope	0.63		
WbD:							
Weikert-------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
Berks---------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95		

Table 13a.--Building Site Development (Part 1)--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
WkF:							
Weikert	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
Berks	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.84		

Table 13b.--Building Site Development (Part 2)

(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		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AgB:							
Allegheny-----------	80	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
AgC:							
Allegheny-----------	80	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
AnB:							
Andover-------------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	1.00	Gravel content	0.05
						Droughty	0.02
Ba:							
Basher--------------	75	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	0.35
		Depth to saturated zone	0.35	Flooding	0.60		
BbC:							
Berks---------------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Depth to soft bedrock	0.90	Droughty	0.91
				Cutbanks cave	0.10	Depth to bedrock	0.90
				Slope	0.04	Content of large stones	0.84
						Gravel content	0.78
						Slope	0.04
BbE:							
Berks---------------	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.90	Droughty	0.91
				Cutbanks cave	0.10	Depth to bedrock	0.90
						Content of large stones	0.84
						Gravel content	0.78
BcD:							
Berks---------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
Calvin--------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03

Table 13b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BcE:							
Berks	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
BcF:							
Berks	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.95	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
Calvin	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
BeB:							
Berks	50	Not limited		Somewhat limited		Very limited	
				Depth to soft bedrock	0.84	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.84
						Gravel content	0.39
						Content of large stones	0.32
Clearbrook	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.97	Droughty	0.98
		Frost action	0.50	Cutbanks cave	0.10	Depth to bedrock	0.97
		Low strength	0.22	Content of large stones		Content of large stones	0.32
		Content of large stones	0.02	Too clayey	0.02		
BeC:							
Berks	55	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Depth to soft bedrock	0.84	Droughty	1.00
				Slope	0.63	Depth to bedrock	0.84
				Cutbanks cave	0.10	Slope	0.63
						Gravel content	0.39
						Content of large stones	0.32

Table 13b.--Building Site Development (Part 2)--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
BeC:							
Clearbrook----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Depth to soft bedrock	0.97	Droughty	0.98
		Shrink-swell	0.50	Slope	0.63	Depth to bedrock	0.97
		Frost action	0.50	Cutbamks cave	0.10	Slope	0.63
		Low strength	0.22	Content of large stones	0.02	Content of large stones	0.32
BkB:							
Berks---------------	45	Not limited		Somewhat limited		Very limited	
				Depth to soft bedrock	0.84	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.84
						Gravel content	0.39
						Content of large stones	0.32
Weikert-------------	40	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.92
						Content of large stones	0.01
BqF:							
Blackthorn----------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Content of large stones	1.00
				Too clayey	0.06		
BrB:							
Brinkerton----------	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
		Frost action	1.00	Cutbanks cave	0.10	Content of large stones	0.01
		Low strength	0.78				
		Shrink-swell	0.50				
BuB:							
Buchanan------------	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	1.00	Gravel content	0.54
		Depth to saturated zone	0.19	Cutbanks cave	1.00	Depth to saturated zone	0.19
						Content of large stones	0.01
BuC:							
Buchanan------------	85	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Depth to saturated zone	1.00	Slope	0.63
		Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.54
		Depth to saturated zone	0.19	Slope	0.63	Depth to saturated zone	0.19
						Content of large stones	0.01

Table 13b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BxC:							
Buchanan------------	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	1.00	Content of large stones	0.99
		Depth to saturated zone	0.19	Cutbanks cave	1.00	Depth to saturated zone	0.19
		Slope	0.04	Slope	0.04	Slope	0.04
BxE:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to saturated zone	1.00	Content of large stones	0.99
		Depth to saturated zone	0.19	Cutbanks cave	1.00	Depth to saturated zone	0.19
CbB:							
Calvin--------------	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
Berks---------------	35	Not limited		Somewhat limited		Very limited	
				Depth to soft bedrock	0.95	Droughty	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.95
						Gravel content	0.39
						Content of large stones	0.32
CbC:							
Calvin--------------	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Frost action	0.50	Slope	0.63	Slope	0.63
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
Berks---------------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Depth to soft bedrock	0.95	Droughty	1.00
				Slope	0.63	Depth to bedrock	0.95
				Cutbanks cave	0.10	Slope	0.63
						Gravel content	0.39
						Content of large stones	0.32
CkB:							
Calvin--------------	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01

Table 13b.--Building Site Development (Part 2)--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
CkC:							
Calvin--------------	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Depth to soft bedrock	0.79	Depth to bedrock	0.80
		Frost action	0.50	Slope	0.63	Slope	0.63
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Droughty	1.00
		Frost action	0.50	Cutbanks cave	0.10	Slope	0.63
						Gravel content	0.54
						Content of large stones	0.01
CkD:							
Calvin--------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01
CkE:							
Calvin--------------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01
CkF:							
Calvin--------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.79	Depth to bedrock	0.80
				Cutbanks cave	0.10	Droughty	0.57
						Content of large stones	0.03

Table 13b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CkF:							
Klinesville---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.54
						Content of large stones	0.01
ClC:							
Caneyville----------	90	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.90
		Depth to hard bedrock	0.90	Slope	0.63	Slope	0.63
		Slope	0.63	Too clayey	0.32	Droughty	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
ClD:							
Caneyville----------	85	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	0.90
		Depth to hard bedrock	0.90	Too clayey	0.32	Droughty	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
ClE:							
Caneyville----------	85	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	0.90
		Depth to hard bedrock	0.90	Too clayey	0.32	Droughty	0.01
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
CnF:							
Caneyville----------	85	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	0.90
		Depth to hard bedrock	0.90	Too clayey	0.32	Droughty	0.02
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
CrB:							
Clarksburg----------	80	Somewhat limited		Very limited		Somewhat limited	
		Low strength	0.78	Depth to saturated zone	1.00	Depth to saturated zone	0.35
		Shrink-swell	0.50	Cutbanks cave	0.10	Content of large stones	0.03
		Frost action	0.50				
		Depth to saturated zone	0.35				
CrC:							
Clarksburg----------	80	Somewhat limited		Very limited		Somewhat limited	
		Low strength	0.78	Depth to saturated zone	1.00	Slope	0.63
		Slope	0.63	Slope	0.63	Depth to saturated zone	0.35
		Shrink-swell	0.50	Cutbanks cave	0.10	Content of large stones	0.03
		Frost action	0.50				
		Depth to saturated zone	0.35				

Table 13b.--Building Site Development (Part 2)--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
CvB:							
Clearbrook----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Depth to soft bedrock	0.97	Depth to bedrock	0.97
		Frost action	0.50	Cutbanks cave	0.10	Droughty	0.79
		Low strength	0.22	Too clayey	0.02	Content of large stones	0.01
Cavode--------------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
Cz:							
Combs---------------	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
				Depth to saturated zone	0.35		
				Cutbanks cave	0.10		
DkC:							
Dekalb--------------	85	Somewhat limited		Very limited		Very limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Content of large stones	1.00
		Slope	0.04	Cutbanks cave	0.10	Depth to bedrock	0.90
		Content of large stones	0.01	Slope	0.04	Droughty	0.73
				Content of large stones	0.01	Gravel content	0.19
						Slope	0.04
DrE:							
Dekalb--------------	70	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.01	Cutbanks cave	0.10	Depth to bedrock	0.90
				Content of large stones	0.01	Droughty	0.73
						Gravel content	0.19
Rock outcrop--------	15	Not rated		Not rated		Not rated	
DsB:							
Downsville----------	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.11
						Content of large stones	0.01
DsC:							
Downsville----------	80	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63	Gravel content	0.11
						Content of large stones	0.01

Table 13b.--Building Site Development (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dz:							
Dunning	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
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Too clayey	0.28		
		Low strength	1.00	Cutbanks cave	0.10		
ErB:							
Ernest	85	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Cutbanks cave	0.10	Content of large stones	0.01
		Shrink-swell	0.50				
		Frost action	0.50				
ErC:							
Ernest	80	Very limited		Very limited		Somewhat limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Slope	0.63	Slope	0.63
		Slope	0.63	Cutbanks cave	0.10	Content of large stones	0.01
		Shrink-swell	0.50				
		Frost action	0.50				
HaE:							
Hazleton	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	1.00
		Content of large stones	0.05	Content of large stones	0.05	Gravel content	0.01
Dekalb	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.01	Cutbanks cave	0.10	Depth to bedrock	0.90
				Content of large stones	0.01	Droughty	0.73
						Gravel content	0.19
HaF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	1.00
		Content of large stones	0.05	Content of large stones	0.05	Gravel content	0.01
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.01	Cutbanks cave	0.10	Depth to bedrock	0.90
				Content of large stones	0.01	Droughty	0.73
						Gravel content	0.19
HdF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Content of large stones	1.00
		Content of large stones	0.09	Content of large stones	0.09	Gravel content	0.01

Table 13b.--Building Site Development (Part 2)--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
HdF:							
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.03	Cutbanks cave	0.10	Depth to bedrock	0.90
				Content of large stones	0.03	Droughty	0.73
						Gravel content	0.19
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Content of large stones	1.00
		Content of large stones	0.16	Content of large stones	0.16	Gravel content	0.01
Dekalb	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.07	Cutbanks cave	0.10	Depth to bedrock	0.90
				Content of large stones	0.07	Droughty	0.73
						Gravel content	0.19
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Content of large stones	1.00
		Content of large stones	0.05	Content of large stones	0.05	Gravel content	0.01
Lehew	20	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.08	Slope	1.00	Content of large stones	1.00
				Cutbanks cave	0.10	Droughty	0.33
						Gravel content	0.11
						Depth to bedrock	0.08
Dekalb	15	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90	Slope	1.00	Content of large stones	1.00
		Content of large stones	0.01	Cutbanks cave	0.10	Depth to bedrock	0.90
				Content of large stones	0.01	Droughty	0.73
						Gravel content	0.19
Ho:							
Holly	80	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.80		

Table 13b.--Building Site Development (Part 2)--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
HwB:							
Hustontown----------	85	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	0.75	Cutbanks cave	0.10	Content of large	0.01
Ln:							
Lindside------------	80	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Flooding	1.00	Flooding	0.60	Depth to saturated zone	0.03
		Low strength	1.00	Cutbanks cave	0.10		
		Depth to saturated zone	0.03				
LzC:							
Litz----------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.50	Slope	0.50	Gravel content	0.61
		Frost action	0.50	Depth to soft bedrock	0.35	Content of large stones	0.54
				Cutbanks cave	0.10	Slope	0.50
						Depth to bedrock	0.35
LzD:							
Litz----------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.35	Gravel content	0.61
				Cutbanks cave	0.10	Content of large stones	0.54
						Depth to bedrock	0.35
LzE:							
Litz----------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.35	Gravel content	0.61
				Cutbanks cave	0.10	Content of large stones	0.54
						Depth to bedrock	0.35
LzF:							
Litz----------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Depth to soft bedrock	0.35	Gravel content	0.61
				Cutbanks cave	0.10	Content of large stones	0.54
						Depth to bedrock	0.35
Me:							
Melvin--------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.80		
		Low strength	1.00				
MhA:							
Monongahela---------	80	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.48
		Depth to saturated zone	0.48	Cutbanks cave	0.10		
		Low strength	0.22				

Table 13b.--Building Site Development (Part 2)--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
MhB:							
Monongahela	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.48
		Depth to saturated zone	0.48	Cutbanks cave	0.10		
		Low strength	0.22				
MhC:							
Monongahela	80	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Depth to saturated zone	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63	Depth to saturated zone	0.48
		Depth to saturated zone	0.48	Cutbanks cave	0.10		
		Low strength	0.22				
MrC:							
Murrill	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.63	Cutbanks cave	1.00	Slope	0.63
		Frost action	0.50	Slope	0.63	Gravel content	0.41
		Low strength	0.22				
MrD:							
Murrill	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.41
		Low strength	0.22				
MsC:							
Murrill	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Slope	0.04
		Low strength	0.22	Slope	0.04	Content of large stones	0.01
		Slope	0.04	Too clayey	0.01		
MsE:							
Murrill	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01
		Low strength	0.22	Too clayey	0.01		
Pg:							
Philo	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.14
		Depth to saturated zone	0.03	Flooding	0.60	Depth to saturated zone	0.03
Ph:							
Philo	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Frost action	0.50	Flooding	0.60	Depth to saturated zone	0.03
		Depth to saturated zone	0.03	Cutbanks cave	0.10		
Ps:							
Pope	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Frost action	0.50	Depth to saturated zone	0.35		
				Cutbanks cave	0.10		

Table 13b.--Building Site Development (Part 2)--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
Px:							
Pope----------------	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Frost action	0.50	Depth to saturated zone	0.35		
				Cutbanks cave	0.10		
Pz:							
Pope----------------	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
		Frost action	0.50	Flooding	0.80		
				Depth to saturated zone	0.61		
Philo---------------	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	0.50	Cutbanks cave	1.00	Depth to saturated zone	0.19
		Depth to saturated zone	0.19	Flooding	0.80		
Qm:							
Quarry, limestone---	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone---	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale-------	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Opequon-------------	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	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10	Droughty	0.99
		Low strength	1.00			Gravel content	0.05
		Frost action	0.50				
RgG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Rough---------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.70
						Content of large stones	0.32
RuD:							
Rushtown------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10	Gravel content	0.98
RuF:							
Rushtown------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10	Gravel content	0.98

Table 13b.--Building Site Development (Part 2)--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
ShC:							
Schaffenaker--------	80	Somewhat limited		Very limited		Somewhat limited	
		Depth to hard bedrock	0.90	Depth to hard bedrock	1.00	Droughty	0.99
						Depth to bedrock	0.90
		Slope	0.04	Cutbanks cave	1.00	Content of large stones	0.84
				Slope	0.04	Slope	0.04
SkF:							
Schaffenaker--------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90			Droughty	0.99
				Slope	1.00	Depth to bedrock	0.90
				Cutbanks cave	1.00	Content of large stones	0.84
Rock outcrop--------	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker--------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90			Droughty	0.99
				Slope	1.00	Depth to bedrock	0.90
				Cutbanks cave	1.00	Content of large stones	0.84
Vanderlip-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Content of large stones	0.97
SnF:							
Schaffenaker--------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.90			Droughty	0.99
				Slope	1.00	Depth to bedrock	0.90
				Cutbanks cave	1.00	Content of large stones	0.84
Vanderlip-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	1.00	Content of large stones	0.97
SxC:							
Sideling------------	85	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.36
		Slope	0.04	Depth to saturated zone	0.97	Content of large stones	0.32
				Slope	0.04	Slope	0.04
				Too clayey	0.02		
SxE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.36
				Depth to saturated zone	0.97	Content of large stones	0.32
				Too clayey	0.02		

Table 13b.--Building Site Development (Part 2)--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
SyE:							
Sideling------------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	0.50	Cutbanks cave	1.00	Content of large stones	1.00
				Depth to saturated zone	0.97	Gravel content	0.36
				Too clayey	0.02		
Ta:							
Tioga---------------	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
		Frost action	0.50	Flooding	0.60		
				Depth to saturated zone	0.35		
TyA:							
Tygart--------------	85	Very limited		Very limited		Very limited	
		Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50	Too clayey	0.03		
		Frost action	0.50				
Ua:							
Udorthents----------	95	Not rated		Not rated		Not rated	
Uu:							
Urban land----------	45	Not rated		Not rated		Not rated	
Udorthents----------	45	Not rated		Not rated		Not rated	
WaB:							
Weikert-------------	85	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Frost action	0.50	Cutbanks cave	0.10	Droughty	1.00
						Gravel content	0.92
						Content of large stones	0.01
WaC:							
Weikert-------------	85	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Droughty	1.00
		Frost action	0.50	Cutbanks cave	0.10	Gravel content	0.92
						Slope	0.63
						Content of large stones	0.01
WbC:							
Weikert-------------	45	Somewhat limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	0.63	Slope	0.63	Droughty	1.00
		Frost action	0.50	Cutbanks cave	0.10	Gravel content	0.92
						Slope	0.63
						Content of large stones	0.01

Table 13b.--Building Site Development (Part 2)--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
WbC:							
Berks	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Depth to soft bedrock	0.84	Droughty	1.00
						Depth to bedrock	0.84
				Slope	0.63	Slope	0.63
				Cutbanks cave	0.10	Gravel content	0.39
						Content of large stones	0.32
WbD:							
Weikert	50	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00			Slope	1.00
				Slope	1.00	Droughty	1.00
		Frost action	0.50	Cutbanks cave	0.10	Gravel content	0.92
						Content of large stones	0.01
Berks	35	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	0.39
						Content of large stones	0.32
WkF:							
Weikert	50	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Depth to soft bedrock	1.00			Slope	1.00
				Slope	1.00	Droughty	1.00
		Frost action	0.50	Cutbanks cave	0.10	Gravel content	0.84
						Content of large stones	0.54
Berks	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Depth to soft bedrock	0.84	Droughty	0.87
						Depth to bedrock	0.84
				Cutbanks cave	0.10	Gravel content	0.70
						Content of large stones	0.32

Table 14a.--Sanitary Facilities (Part 1)

(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
AgB:					
Allegheny-----------	80	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Slope	0.92
				Seepage	0.53
AgC:					
Allegheny-----------	80	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Slope	0.92
				Seepage	0.53
AnB:					
Andover-------------	75	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.32
Ba:					
Basher--------------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	1.00
BbC:					
Berks---------------	80	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.04	Seepage	1.00
				Slope	1.00
				Content of organic matter	1.00
BbE:					
Berks---------------	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
				Content of organic matter	1.00
BcD:					
Berks---------------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Calvin--------------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00

Table 14a.--Sanitary Facilities (Part 1)--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
BcE:					
Berks	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Calvin	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
BcF:					
Berks	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Calvin	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
BeB:					
Berks	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
Clearbrook	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Content of large stones	0.02	Slope	0.92
				Content of large stones	0.21
BeC:					
Berks	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00
				Seepage	1.00
Clearbrook	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.63	Depth to saturated zone	1.00
		Content of large stones	0.02	Content of large stones	0.21

Table 14a.--Sanitary Facilities (Part 1)--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
BkB:					
Berks	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
Weikert	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
BqF:					
Blackthorn	80	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.72	Seepage	1.00
				Content of organic matter	1.00
BrB:					
Brinkerton	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.92
				Seepage	0.50
BuB:					
Buchanan	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.92
				Seepage	0.53
BuC:					
Buchanan	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Seepage	0.53
BxC:					
Buchanan	85	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	Content of organic matter	1.00
				Seepage	0.53
BxE:					
Buchanan	85	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Content of organic matter	1.00
				Seepage	0.53

Table 14a.--Sanitary Facilities (Part 1)--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
CbB:					
Calvin--------------	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
Berks---------------	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
CbC:					
Calvin--------------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63		
				Slope	1.00
				Seepage	1.00
Berks---------------	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63		
				Slope	1.00
				Seepage	1.00
CkB:					
Calvin--------------	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
Klinesville---------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
CkC:					
Calvin--------------	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63		
				Slope	1.00
				Seepage	1.00
Klinesville---------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63		
				Slope	1.00
				Seepage	1.00
CkD:					
Calvin--------------	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00		
				Slope	1.00
				Seepage	1.00

Table 14a.--Sanitary Facilities (Part 1)--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
CkD:					
Klinesville----------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
CkE:					
Calvin--------------	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Klinesville----------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
CkF:					
Calvin--------------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Klinesville----------	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
ClC:					
Caneyville----------	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Restricted permeability	1.00	Slope	1.00
		Slope	0.63	Seepage	0.21
ClD:					
Caneyville----------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.21
ClE:					
Caneyville----------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.21
CnF:					
Caneyville----------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Seepage	0.21

Table 14a.--Sanitary Facilities (Part 1)--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
CrB:					
Clarksburg----------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Slope	0.92
				Seepage	0.50
CrC:					
Clarksburg----------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Slope	0.63	Seepage	0.50
CvB:					
Clearbrook----------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Slope	0.32
				Content of large stones	0.01
Cavode--------------	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.32
		Depth to bedrock	0.18		
Cz:					
Combs---------------	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.84	Seepage	1.00
				Depth to saturated zone	0.17
DkC:					
Dekalb--------------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Seepage	1.00
		Slope	0.04	Slope	1.00
		Content of large stones	0.02	Content of organic matter	1.00
				Content of large stones	0.37
DrE:					
Dekalb--------------	70	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Content of large stones	0.01	Content of organic matter	1.00
				Content of large stones	0.44

Table 14a.--Sanitary Facilities (Part 1)--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
DrE:					
Rock outcrop	15	Not rated		Not rated	
DsB:					
Downsville	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.92
				Seepage	0.53
DsC:					
Downsville	80	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Slope	0.63	Seepage	0.53
Dz:					
Dunning	85	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Restricted permeability	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.02
ErB:					
Ernest	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Slope	0.92
				Seepage	0.53
ErC:					
Ernest	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Slope	0.63	Seepage	0.53
HaE:					
Hazleton	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
		Content of large stones	0.05	Content of organic matter	1.00
				Content of large stones	0.78
Dekalb	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Content of large stones	0.02	Content of organic matter	1.00
				Content of large stones	0.37

Table 14a.--Sanitary Facilities (Part 1)--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
HaF:					
Hazleton	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
		Content of large stones	0.05	Content of organic matter	1.00
				Content of large stones	0.78
Dekalb	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Content of large stones	0.02	Content of organic matter	1.00
				Content of large stones	0.37
HdF:					
Hazleton	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
		Content of large stones	0.10	Content of organic matter	1.00
				Content of large stones	0.96
Dekalb	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Content of large stones	0.03	Content of organic matter	1.00
				Content of large stones	0.52
Rock outcrop	15	Not rated		Not rated	
HeF:					
Hazleton	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
		Content of large stones	0.17	Content of large stones	1.00
				Content of organic matter	1.00
Dekalb	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Content of large stones	0.08	Content of organic matter	1.00
				Content of large stones	0.75
Rock outcrop	15	Not rated		Not rated	

Table 14a.--Sanitary Facilities (Part 1)--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
HlF:					
Hazleton------------	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
		Content of large stones	0.05	Content of organic matter	1.00
				Content of large stones	0.78
Lehew---------------	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
				Content of organic matter	1.00
				Content of large stones	0.03
Dekalb--------------	15	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Content of large stones	0.02	Content of organic matter	1.00
				Content of large stones	0.37
Ho:					
Holly---------------	80	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	1.00
HwB:					
Hustontown----------	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Slope	0.92
				Seepage	0.53
Ln:					
Lindside------------	80	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72	Seepage	1.00

Table 14a.--Sanitary Facilities (Part 1)--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
LzC:					
Litz	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.50	Slope	1.00
		Restricted permeability	0.50	Content of organic matter	1.00
				Seepage	0.50
				Content of large stones	0.07
LzD:					
Litz	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Content of organic matter	1.00
				Seepage	0.50
				Content of large stones	0.07
LzE:					
Litz	80	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Content of organic matter	1.00
				Seepage	0.50
				Content of large stones	0.07
LzF:					
Litz	80	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.50	Content of organic matter	1.00
				Seepage	0.50
				Content of large stones	0.07
Me:					
Melvin	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	0.53
MhA:					
Monongahela	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Restricted permeability	1.00	Seepage	0.53

Table 14a.--Sanitary Facilities (Part 1)--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
MhB:					
Monongahela---------	85	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Restricted permeability	1.00	Slope	0.92
				Seepage	0.53
MhC:					
Monongahela---------	80	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Restricted permeability	1.00	Depth to saturated zone	0.94
		Slope	0.63	Seepage	0.53
MrC:					
Murrill-------------	90	Somewhat limited		Very limited	
		Restricted permeability	0.72	Slope	1.00
		Slope	0.63	Seepage	0.50
MrD:					
Murrill-------------	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.72	Seepage	0.50
MsC:					
Murrill-------------	85	Somewhat limited		Very limited	
		Restricted permeability	0.72	Slope	1.00
		Slope	0.04	Seepage	0.50
MsE:					
Murrill-------------	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.72	Seepage	0.50
Pg:					
Philo---------------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Restricted permeability	0.50	Depth to saturated zone	1.00
Ph:					
Philo---------------	75	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Restricted permeability	0.46	Depth to saturated zone	1.00
Ps:					
Pope----------------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.84	Seepage	1.00
				Depth to saturated zone	0.17

Table 14a.--Sanitary Facilities (Part 1)--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
Px:					
Pope	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.84	Seepage	1.00
				Depth to saturated zone	0.17
Pz:					
Pope	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	0.71
Philo	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
				Depth to saturated zone	1.00
Qm:					
Quarry, limestone	97	Not rated		Not rated	
Qo:					
Quarry, sandstone	95	Not rated		Not rated	
Qs:					
Quarry, shale	96	Not rated		Not rated	
ReG:					
Rock outcrop	50	Not rated		Not rated	
Opequon	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
RgG:					
Rock outcrop	50	Not rated		Not rated	
Rough	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
RuD:					
Rushtown	90	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
				Content of organic matter	1.00
RuF:					
Rushtown	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
				Content of organic matter	1.00

Table 14a.--Sanitary Facilities (Part 1)--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
ShC:					
Schaffenaker--------	80	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Filtering capacity	1.00	Seepage	1.00
		Slope	0.04	Slope	1.00
				Content of organic matter	1.00
SkF:					
Schaffenaker--------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
				Content of organic matter	1.00
Rock outcrop--------	40	Not rated		Not rated	
SnE:					
Schaffenaker--------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
				Content of organic matter	1.00
Vanderlip-----------	40	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
			1.00	Seepage	1.00
		Slope	1.00	Content of organic matter	1.00
SnF:					
Schaffenaker--------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Filtering capacity	1.00	Seepage	1.00
				Content of organic matter	1.00
Vanderlip-----------	40	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
				Seepage	1.00
		Slope	1.00	Content of organic matter	1.00
SxC:					
Sideling------------	85	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	Content of organic matter	1.00
				Seepage	0.50

Table 14a.--Sanitary Facilities (Part 1)--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
SxE:					
Sideling------------	80	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Content of organic matter	1.00
				Seepage	0.50
SyE:					
Sideling------------	80	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	1.00	Content of organic matter	1.00
				Seepage	0.50
				Content of large stones	0.01
Ta:					
Tioga---------------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
		Depth to saturated zone	0.84	Depth to saturated zone	0.17
TyA:					
Tygart--------------	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Ua:					
Udorthents----------	95	Not rated		Not rated	
Uu:					
Urban land----------	45	Not rated		Not rated	
Udorthents----------	45	Not rated		Not rated	
WaB:					
Weikert-------------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
				Seepage	1.00
				Slope	0.92
WaC:					
Weikert-------------	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00
				Seepage	1.00

Table 14a.--Sanitary Facilities (Part 1)--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
WbC:					
Weikert-------------	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00
				Seepage	1.00
Berks---------------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.63	Slope	1.00
				Seepage	1.00
WbD:					
Weikert-------------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
Berks---------------	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
WkF:					
Weikert-------------	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
				Content of organic matter	1.00
Berks---------------	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	1.00
				Content of organic matter	1.00

Table 14b.--Sanitary Facilities (Part 2)

(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
AgB:							
Allegheny-----------	80	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
AgC:							
Allegheny-----------	80	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
AnB:							
Andover-------------	75	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
Ba:							
Basher--------------	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.93
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.04
		Seepage	1.00				
BbC:							
Berks---------------	80	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Gravel content	0.61
		Slope	0.04	Slope	0.04	Seepage	0.21
						Slope	0.04
BbE:							
Berks---------------	75	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	1.00	Seepage	1.00	Gravel content	0.61
						Seepage	0.21
BcD:							
Berks---------------	45	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	1.00	Depth to bedrock	1.00	Gravel content	0.73
						Seepage	0.22
Calvin--------------	40	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	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
BcE:							
Berks---------------	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	1.00	Depth to bedrock	1.00	Gravel content	0.73
						Seepage	0.22

Table 14b.--Sanitary Facilities (Part 2)--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
BcE:							
Calvin	40	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	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
BcF:							
Berks	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	1.00	Depth to bedrock	1.00	Gravel content	0.73
						Seepage	0.22
Calvin	40	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	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
BeB:							
Berks	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Gravel content	0.71
						Seepage	0.22
Clearbrook	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50
		Content of large stones	0.02			Content of large stones	0.02
BeC:							
Berks	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Gravel content	0.71
		Slope	0.63	Slope	0.63	Slope	0.63
						Seepage	0.22
Clearbrook	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
		Content of large stones	0.02			Content of large stones	0.02
BkB:							
Berks	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Gravel content	0.71
						Seepage	0.22
Weikert	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Gravel content	1.00
						Seepage	0.52

Table 14b.--Sanitary Facilities (Part 2)--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
BqF:							
Blackthorn----------	80	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Seepage	1.00	Seepage	0.21
						Gravel content	0.02
BrB:							
Brinkerton----------	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
		Too clayey	0.50			Too clayey	0.50
BuB:							
Buchanan------------	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
						Gravel content	0.38
BuC:							
Buchanan------------	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.38
BxC:							
Buchanan------------	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
		Slope	0.04	Slope	0.04	Gravel content	0.16
						Slope	0.04
BxE:							
Buchanan------------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
						Gravel content	0.25
CbB:							
Calvin--------------	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
Berks---------------	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Gravel content	0.73
						Seepage	0.22
CbC:							
Calvin--------------	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Slope	0.63
		Slope	0.63	Slope	0.63	Seepage	0.52
						Gravel content	0.38

Table 14b.--Sanitary Facilities (Part 2)--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
CbC:							
Berks	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Gravel content	0.73
		Slope	0.63	Slope	0.63	Slope	0.63
						Seepage	0.22
CkB:							
Calvin	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
Klinesville	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Gravel content	1.00
						Seepage	0.52
CkC:							
Calvin	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Slope	0.63
		Slope	0.63	Slope	0.63	Seepage	0.52
						Gravel content	0.38
Klinesville	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Gravel content	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
						Seepage	0.52
CkD:							
Calvin	65	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	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
Klinesville	30	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	1.00	Seepage	1.00	Gravel content	1.00
						Seepage	0.52
CkE:							
Calvin	60	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	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
Klinesville	30	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	1.00	Seepage	1.00	Gravel content	1.00
						Seepage	0.52

Table 14b.--Sanitary Facilities (Part 2)--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
CkF:							
Calvin	45	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	1.00	Depth to bedrock	1.00	Seepage	0.52
						Gravel content	0.38
Klinesville	30	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	1.00	Seepage	1.00	Gravel content	1.00
						Seepage	0.52
ClC:							
Caneyville	90	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
ClD:							
Caneyville	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	1.00			Too clayey	1.00
						Hard to compact	1.00
ClE:							
Caneyville	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	1.00			Too clayey	1.00
						Hard to compact	1.00
CnF:							
Caneyville	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	1.00			Too clayey	1.00
						Hard to compact	1.00
CrB:							
Clarksburg	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.93
		Too clayey	0.50			Too clayey	0.50
CrC:							
Clarksburg	80	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.93
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
CvB:							
Clearbrook	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
		Too clayey	0.50			Too clayey	0.50

Table 14b.--Sanitary Facilities (Part 2)--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
CvB:							
Cavode--------------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00			Too clayey	0.50
		Too clayey	0.50				
Cz:							
Combs---------------	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.22
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00	Seepage	1.00		
DkC:							
Dekalb--------------	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00
		Slope	0.04	Slope	0.04	Gravel content	0.15
		Content of large stones	0.02			Slope	0.04
						Content of large stones	0.02
DrE:							
Dekalb--------------	70	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Content of large stones	0.01			Gravel content	0.11
						Content of large stones	0.01
Rock outcrop--------	15	Not rated		Not rated		Not rated	
DsB:							
Downsville----------	85	Not limited		Not limited		Somewhat limited	
						Gravel content	0.21
DsC:							
Downsville----------	80	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
						Gravel content	0.22
Dz:							
Dunning-------------	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
ErB:							
Ernest--------------	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
						Too clayey	0.50

Table 14b.--Sanitary Facilities (Part 2)--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
ErC:							
Ernest	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
HaE:							
Hazleton	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Content of large stones	0.13			Content of large stones	0.13
Dekalb	40	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Content of large stones	0.02			Gravel content	0.15
						Content of large stones	0.02
HaF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Content of large stones	0.13			Content of large stones	0.13
Dekalb	25	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Content of large stones	0.02			Gravel content	0.15
						Content of large stones	0.02
HdF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Content of large stones	0.17			Content of large stones	0.17
Dekalb	25	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Content of large stones	0.03			Gravel content	0.15
						Content of large stones	0.03
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Content of large stones	0.22			Content of large stones	0.22

Table 14b.--Sanitary Facilities (Part 2)--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
HeF:							
Dekalb	25	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Content of large stones	0.08			Gravel content	0.15
						Content of large stones	0.08
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Content of large stones	0.13			Content of large stones	0.13
Lehew	20	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	1.00	Seepage	1.00	Seepage	1.00
						Gravel content	0.49
Dekalb	15	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Content of large stones	0.02			Gravel content	0.15
						Content of large stones	0.02
Ho:							
Holly	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Seepage	0.22
		Seepage	1.00	Seepage	1.00		
HwB:							
Hustontown	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
		Too clayey	0.50			Too clayey	0.50
Ln:							
Lindside	80	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Seepage	1.00				
		Too clayey	0.50				
LzC:							
Litz	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.50	Slope	0.50	Gravel content	0.95
						Slope	0.50

Table 14b.--Sanitary Facilities (Part 2)--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
LzD:							
Litz----------------	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
						Gravel content	0.95
LzE:							
Litz----------------	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
						Gravel content	0.95
LzF:							
Litz----------------	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
						Gravel content	0.95
Me:							
Melvin--------------	90	Not rated		Very limited		Very limited	
				Flooding	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Too clayey	0.50
MhA:							
Monongahela---------	80	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96
MhB:							
Monongahela---------	85	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96
MhC:							
Monongahela---------	80	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96
		Slope	0.63	Slope	0.63	Slope	0.63
MrC:							
Murrill-------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Slope	0.63
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.05
MrD:							
Murrill-------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
						Gravel content	0.05
MsC:							
Murrill-------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.04	Slope	0.04	Slope	0.04
						Gravel content	0.01

Table 14b.--Sanitary Facilities (Part 2)--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
MsE:							
Murrill	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.01
Pg:							
Philo	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.16
		Seepage	1.00				
Ph:							
Philo	75	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.68
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00				
Ps:							
Pope	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.22
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00	Seepage	1.00		
Px:							
Pope	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.22
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
		Seepage	1.00	Seepage	1.00		
Pz:							
Pope	50	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.52
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	0.50
		Seepage	1.00	Seepage	1.00	Gravel content	0.02
		Too sandy	0.50				
Philo	30	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.86
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.52
		Seepage	1.00	Seepage	1.00	Gravel content	0.01
Qm:							
Quarry, limestone	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop	50	Not rated		Not rated		Not rated	

Table 14b.--Sanitary Facilities (Part 2)--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
ReG:							
Opequon-------------	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
		Too clayey	1.00	Seepage	1.00	Too clayey	1.00
						Hard to compact	1.00
						Gravel content	0.01
RgG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Rough---------------	45	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	1.00			Seepage	1.00
						Gravel content	1.00
RuD:							
Rushtown------------	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Seepage	1.00	Seepage	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	1.00
RuF:							
Rushtown------------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Seepage	1.00
						Gravel content	1.00
ShC:							
Schaffenaker--------	80	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00
		Too sandy	0.50	Slope	0.04	Too sandy	0.50
		Slope	0.04			Slope	0.04
SkF:							
Schaffenaker--------	45	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
Rock outcrop--------	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker--------	45	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
Vanderlip-----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities (Part 2)--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
SnF:							
Schaffenaker	40	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	1.00	Depth to bedrock	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
Vanderlip	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage	1.00	Seepage	1.00	Too sandy	1.00
		Too sandy	1.00			Seepage	1.00
SxC:							
Sideling	85	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.14
		Slope	0.04	Slope	0.04	Slope	0.04
SxE:							
Sideling	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.14
SyE:							
Sideling	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
		Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.14
		Content of large stones	0.02			Content of large stones	0.02
Ta:							
Tioga	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Seepage	0.21
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.13
		Seepage	1.00	Seepage	1.00		
TyA:							
Tygart	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
		Too clayey	1.00			Too clayey	1.00
						Hard to compact	1.00
Ua:							
Udorthents	95	Not rated		Not rated		Not rated	
Uu:							
Urban land	45	Not rated		Not rated		Not rated	
Udorthents	45	Not rated		Not rated		Not rated	
WaB:							
Weikert	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00			Gravel content	0.54
						Seepage	0.12

Table 14b.--Sanitary Facilities (Part 2)--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
WaC:							
Weikert-------------	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Slope	0.63	Slope	0.63
		Slope	0.63			Gravel content	0.50
						Seepage	0.12
WbC:							
Weikert-------------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Seepage	1.00	Seepage	1.00	Gravel content	1.00
		Slope	0.63	Slope	0.63	Slope	0.63
						Seepage	0.52
Berks---------------	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage	1.00	Depth to bedrock	1.00	Gravel content	0.71
		Slope	0.63	Slope	0.63	Slope	0.63
						Seepage	0.22
WbD:							
Weikert-------------	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
		Seepage	1.00	Seepage	1.00	Gravel content	0.89
						Seepage	0.52
Berks---------------	35	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	1.00	Depth to bedrock	1.00	Gravel content	0.73
						Seepage	0.22
WkF:							
Weikert-------------	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
		Seepage	1.00			Gravel content	1.00
						Seepage	0.52
Berks---------------	35	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	1.00	Seepage	1.00	Gravel content	0.92
						Seepage	0.22

Table 15a.--Construction Materials (Part 1)

(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
AgB:					
Allegheny	80	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
AgC:					
Allegheny	80	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
AnB:					
Andover	75	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Ba:					
Basher	75	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.02
BbC:					
Berks	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BbE:					
Berks	75	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
BcD:					
Berks	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Calvin	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BcE:					
Berks	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Calvin	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BcF:					
Berks	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
BcF:					
Calvin	40	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
BeB:					
Berks	50	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Clearbrook	45	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
BeC:					
Berks	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Clearbrook	40	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
BkB:					
Berks	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Weikert	40	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.38	Thickest layer	0.00
BqF:					
Blackthorn	80	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer		Thickest layer	0.04
BrB:					
Brinkerton	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
BuB:					
Buchanan	85	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
BuC:					
Buchanan	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
BxC:					
Buchanan	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
BxE:					
Buchanan	85	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
CbB:					
Calvin	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Berks	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
CbC:					
Calvin	50	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Berks	35	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
CkB:					
Calvin	65	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Klinesville	30	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.31	Bottom layer	0.00
CkC:					
Calvin	65	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Klinesville	30	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.31	Thickest layer	0.00
CkD:					
Calvin	65	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Klinesville	30	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.31	Thickest layer	0.00
CkE:					
Calvin	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Klinesville	30	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.31	Bottom layer	0.00
CkF:					
Calvin	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Klinesville	30	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.31	Thickest layer	0.00

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
ClC:					
Caneyville----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ClD:					
Caneyville----------	85	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
ClE:					
Caneyville----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CnF:					
Caneyville----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CrB:					
Clarksburg----------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CrC:					
Clarksburg----------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
CvB:					
Clearbrook----------	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cavode--------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cz:					
Combs---------------	85	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
DkC:					
Dekalb--------------	85	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
DrE:					
Dekalb--------------	70	Poor		Fair	
		Thickest layer	0.00	Content of organic matter	0.00
		Content of organic matter	0.00	Bottom layer	0.04
		Bottom layer	0.00	Thickest layer	0.04
Rock outcrop--------	15	Not rated		Not rated	
DsB:					
Downsville----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
DsC:					
Downsville----------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Dz:					
Dunning-------------	85	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
ErB:					
Ernest--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
ErC:					
Ernest--------------	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
HaE:					
Hazleton------------	45	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Dekalb--------------	40	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
HaF:					
Hazleton------------	55	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Dekalb--------------	25	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
HdF:					
Hazleton------------	55	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.04
		Bottom layer	0.00	Bottom layer	0.06
Dekalb--------------	25	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Rock outcrop--------	15	Not rated		Not rated	
HeF:					
Hazleton------------	55	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.04
		Thickest layer	0.00	Bottom layer	0.06
Dekalb--------------	25	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Rock outcrop--------	15	Not rated		Not rated	

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
HlF:					
Hazleton------------	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Lehew---------------	20	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.02
Dekalb--------------	15	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.03
Ho:					
Holly---------------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
HwB:					
Hustontown----------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ln:					
Lindside------------	80	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
LzC:					
Litz----------------	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.12	Thickest layer	0.00
LzD:					
Litz----------------	85	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.12	Thickest layer	0.00
LzE:					
Litz----------------	80	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.12	Bottom layer	0.00
LzF:					
Litz----------------	80	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.12	Thickest layer	0.00
Me:					
Melvin--------------	90	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.03
MhA:					
Monongahela---------	80	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
MhB:					
Monongahela---------	85	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
MhC:					
Monongahela---------	80	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
MrC:					
Murrill-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MrD:					
Murrill-------------	85	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
MsC:					
Murrill-------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
MsE:					
Murrill-------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Pg:					
Philo---------------	75	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Ph:					
Philo---------------	75	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Ps:					
Pope----------------	90	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.04
Px:					
Pope----------------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Pz:					
Pope----------------	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.12
Philo---------------	30	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.01
		Bottom layer	0.00	Thickest layer	0.01
Qm:					
Quarry, limestone---	97	Not rated		Not rated	
Qo:					
Quarry, sandstone---	95	Not rated		Not rated	
Qs:					
Quarry, shale-------	96	Not rated		Not rated	

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
ReG:					
Rock outcrop	50	Not rated		Not rated	
Opequon	40	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
RgG:					
Rock outcrop	50	Not rated		Not rated	
Rough	45	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
RuD:					
Rushtown	90	Fair		Poor	
		Thickest layer	0.12	Thickest layer	0.00
		Bottom layer	0.69	Bottom layer	0.00
RuF:					
Rushtown	85	Fair		Poor	
		Thickest layer	0.12	Bottom layer	0.00
		Bottom layer	0.69	Thickest layer	0.00
ShC:					
Schaffenaker	80	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.00	Bottom layer	0.08
SkF:					
Schaffenaker	45	Poor		Fair	
		Thickest layer	0.00	Thickest layer	0.08
		Bottom layer	0.00	Bottom layer	0.08
Rock outcrop	40	Not rated		Not rated	
SnE:					
Schaffenaker	45	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.08
Vanderlip	40	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.30
SnF:					
Schaffenaker	40	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.08
		Bottom layer	0.00	Thickest layer	0.08
Vanderlip	40	Poor		Fair	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.30
SxC:					
Sideling	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
SxE:					
Sideling	80	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
SyE:					
Sideling------------	80	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
Ta:					
Tioga---------------	90	Fair		Fair	
		Thickest layer	0.00	Thickest layer	0.02
		Bottom layer	0.50	Bottom layer	0.10
TyA:					
Tygart--------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ua:					
Udorthents----------	95	Not rated		Not rated	
Uu:					
Urban land----------	45	Not rated		Not rated	
Udorthents----------	45	Not rated		Not rated	
WaB:					
Weikert-------------	85	Poor		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.00	Bottom layer	0.00
WaC:					
Weikert-------------	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
WbC:					
Weikert-------------	45	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.38	Thickest layer	0.00
Berks---------------	40	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
WbD:					
Weikert-------------	50	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.38	Thickest layer	0.00
Berks---------------	35	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00
WkF:					
Weikert-------------	50	Fair		Poor	
		Thickest layer	0.00	Thickest layer	0.00
		Bottom layer	0.31	Bottom layer	0.00
Berks---------------	35	Poor		Poor	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.00

Table 15b.--Construction Materials (Part 2)

(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
AgB:							
Allegheny	80	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.50
		Too acid	0.32			Too acid	0.88
AgC:							
Allegheny	80	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.50
		Too acid	0.32			Too acid	0.88
AnB:							
Andover	75	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too acid	0.32	Low strength	0.00	Rock fragments	0.12
						Hard to reclaim	0.24
						Too acid	0.88
Ba:							
Basher	75	Fair		Poor		Poor	
		Too acid	0.20	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.32	Depth to saturated zone	0.38	Hard to reclaim	0.08
						Depth to saturated zone	0.38
BbC:							
Berks	80	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Low content of organic matter	0.12			Too acid	0.59
		Too acid	0.50			Slope	0.96
BbE:							
Berks	75	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Slope	0.00	Depth to bedrock	0.10
		Too acid	0.50			Too acid	0.59
BcD:							
Berks	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.05	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.50	Depth to bedrock	0.05
		Too acid	0.50			Too acid	0.59

Table 15b.--Construction Materials (Part 2)--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
BcD:							
Calvin	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.03
				Slope	0.50	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				
BcE:							
Berks	50	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	Low strength	0.00	Depth to bedrock	0.05
						Too acid	0.59
		Too acid	0.50				
Calvin	40	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.03
				Depth to bedrock	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				
BcF:							
Berks	50	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Depth to bedrock	0.05	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.05
						Too acid	0.59
		Too acid	0.50				
Calvin	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.00	Rock fragments	0.03
				Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				
BeB:							
Berks	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.16
						Too acid	0.59
		Depth to bedrock	0.16				
		Too acid	0.50				
Clearbrook	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to	0.00
		Depth to bedrock	0.03	Depth to saturated zone	0.00	saturated zone	0.00
		Low content of organic matter	0.12			Rock fragments	0.00
				Low strength	0.00	Depth to bedrock	0.03
		Too acid	0.50	Cobble content	0.65	Too acid	0.88
		Cobble content	0.98	Shrink-swell	0.87		
BeC:							
Berks	55	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.16
						Slope	0.37
		Depth to bedrock	0.16			Too acid	0.59
		Too acid	0.50				

Table 15b.--Construction Materials (Part 2)--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
BeC:							
Clearbrook	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to saturated zone	0.00
		Depth to bedrock	0.03	Depth to saturated zone	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.03
		Too acid	0.50	Cobble content	0.65	Slope	0.37
		Cobble content	0.98	Shrink-swell	0.87	Too acid	0.88
BkB:							
Berks	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.16
		Depth to bedrock	0.16			Too acid	0.59
		Too acid	0.50				
Weikert	40	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.12			Too acid	0.50
		Too acid	0.50				
BqF:							
Blackthorn	80	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.68	Low strength	0.00	Slope	0.00
				Cobble content	0.99	Too acid	0.98
BrB:							
Brinkerton	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too acid	0.54	Low strength	0.00	Hard to reclaim	0.00
		Water erosion	0.99	Shrink-swell	0.98	Rock fragments	0.50
						Too acid	0.98
BuB:							
Buchanan	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Depth to saturated zone	0.53	Hard to reclaim	0.08
						Depth to saturated zone	0.53
						Too acid	0.76
BuC:							
Buchanan	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Depth to saturated zone	0.53	Hard to reclaim	0.08
						Slope	0.37
						Depth to saturated zone	0.53
						Too acid	0.76

Table 15b.--Construction Materials (Part 2)--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
BxC:							
Buchanan	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50	Depth to saturated zone	0.53	Hard to reclaim	0.08
						Too acid	0.50
						Depth to saturated zone	0.53
						Slope	0.96
BxE:							
Buchanan	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.50	Slope	0.00	Rock fragments	0.00
				Depth to saturated zone	0.53	Hard to reclaim	0.08
						Too acid	0.50
						Depth to saturated zone	0.53
CbB:							
Calvin	55	Poor		Poor		Fair	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.03
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				
Berks	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.05	Low strength	0.00	Depth to bedrock	0.05
		Low content of organic matter	0.12			Too acid	0.59
		Too acid	0.50				
CbC:							
Calvin	50	Poor		Poor		Fair	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.03
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Slope	0.37
		Too acid	0.54			Too acid	0.98
Berks	35	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Rock fragments	0.00
		Depth to bedrock	0.05	Depth to bedrock	0.00	Depth to bedrock	0.05
		Low content of organic matter	0.12			Slope	0.37
		Too acid	0.50			Too acid	0.59
CkB:							
Calvin	65	Poor		Poor		Fair	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.03
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				

Table 15b.--Construction Materials (Part 2)--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:							
Klinesville----------	30	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.12			Too acid	0.98
		Too acid	0.54				
CkC:							
Calvin--------------	65	Poor		Poor		Fair	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.03
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.21
						Slope	0.37
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				
Klinesville----------	30	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.00	Low strength	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.12			Slope	0.37
						Too acid	0.98
		Too acid	0.54				
CkD:							
Calvin--------------	65	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.12	Depth to bedrock	0.00	Rock fragments	0.03
				Slope	0.50	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				
Klinesville----------	30	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Slope	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Slope	0.50	Depth to bedrock	0.00
						Too acid	0.98
		Too acid	0.54				
CkE:							
Calvin--------------	60	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.00	Rock fragments	0.03
				Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				
Klinesville----------	30	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.00
						Too acid	0.98
		Too acid	0.54				
CkF:							
Calvin--------------	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.00	Rock fragments	0.03
				Low strength	0.00	Depth to bedrock	0.21
		Depth to bedrock	0.21			Too acid	0.98
		Too acid	0.54				

Table 15b.--Construction Materials (Part 2)--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
CkF:							
Klinesville---------	30	Poor		Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Droughty	0.00	Slope	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.54			Too acid	0.98
ClC:							
Caneyville----------	90	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Low content of organic matter	0.02	Low strength	0.00	Depth to bedrock	0.10
		Depth to bedrock	0.10	Shrink-swell	0.92	Rock fragments	0.28
		Droughty	0.20			Slope	0.37
		Water erosion	0.90				
		Too acid	0.97				
ClD:							
Caneyville----------	85	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.02	Low strength	0.00	Too clayey	0.00
		Depth to bedrock	0.10	Slope	0.50	Depth to bedrock	0.10
		Droughty	0.20	Shrink-swell	0.92	Rock fragments	0.28
		Water erosion	0.90				
		Too acid	0.97				
ClE:							
Caneyville----------	85	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.02	Slope	0.00	Too clayey	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Droughty	0.20	Shrink-swell	0.92	Rock fragments	0.28
		Water erosion	0.90				
		Too acid	0.97				
CnF:							
Caneyville----------	85	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.02	Slope	0.00	Too clayey	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Droughty	0.16	Shrink-swell	0.87	Rock fragments	0.28
		Water erosion	0.90	Stone content	0.99		
		Stone content	0.94				
		Too acid	0.97				
CrB:							
Clarksburg----------	80	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.38
		Too acid	0.84	Depth to saturated zone	0.38	Rock fragments	0.72
				Shrink-swell	0.89	Hard to reclaim	0.95

Table 15b.--Construction Materials (Part 2)--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
CrC:							
Clarksburg	80	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.37
		Too acid	0.84	Depth to saturated zone	0.38	Depth to saturated zone	0.38
				Shrink-swell	0.89	Rock fragments	0.72
						Hard to reclaim	0.95
CvB:							
Clearbrook	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to saturated zone	0.00
		Depth to bedrock	0.03	Depth to saturated zone	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.03
		Too acid	0.50	Shrink-swell	0.87	Too acid	0.88
		Water erosion	0.99	Cobble content	0.94		
Cavode	35	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.18	Low strength	0.00	Too clayey	0.10
		Too acid	0.32	Shrink-swell	0.89	Too acid	0.88
		Water erosion	0.99				
Cz:							
Combs	85	Good		Poor		Fair	
				Low strength	0.00	Rock fragments	0.97
DkC:							
Dekalb	85	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Depth to bedrock	0.00	Depth to bedrock	0.10
		Low content of organic matter	0.12	Cobble content	0.72	Too acid	0.50
		Too acid	0.50			Slope	0.96
		Cobble content	0.99				
DrE:							
Dekalb	70	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.50	Depth to bedrock	0.10
		Too acid	0.50	Cobble content	0.70	Too acid	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
DsB:							
Downsville	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50			Hard to reclaim	0.50
						Too acid	0.88
DsC:							
Downsville	80	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50			Slope	0.37
						Hard to reclaim	0.50
						Too acid	0.88

Table 15b.--Construction Materials (Part 2)--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
Dz:							
Dunning	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	0.24	Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.91		
ErB:							
Ernest	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.14
		Too acid	0.32	Depth to saturated zone	0.14	Hard to reclaim	0.88
		Water erosion	0.90	Shrink-swell	0.98	Too acid	0.88
						Rock fragments	0.88
ErC:							
Ernest	80	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.14
		Too acid	0.32	Depth to saturated zone	0.14	Slope	0.37
		Water erosion	0.90	Shrink-swell	0.98	Too acid	0.88
						Rock fragments	0.88
						Hard to reclaim	0.88
HaE:							
Hazleton	45	Poor		Poor		Poor	
		Too acid	0.00	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.00	Hard to reclaim	0.00
		Cobble content	0.98	Cobble content	0.46	Rock fragments	0.00
						Too acid	0.50
Dekalb	40	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Depth to bedrock	0.10	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.10
		Too acid	0.50	Cobble content	0.72	Too acid	0.50
		Cobble content	0.99				
HaF:							
Hazleton	55	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.00
		Cobble content	0.98	Cobble content	0.46	Rock fragments	0.00
						Too acid	0.50
Dekalb	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.10	Slope	0.00	Slope	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.10
		Too acid	0.50	Cobble content	0.72	Too acid	0.50
		Cobble content	0.99				
HdF:							
Hazleton	55	Poor		Poor		Poor	
		Too acid	0.00	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Slope	0.00	Hard to reclaim	0.00
		Cobble content	0.98	Cobble content	0.46	Slope	0.00
						Too acid	0.50

Table 15b.--Construction Materials (Part 2)--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
HdF:							
Dekalb	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.10
		Too acid	0.50	Cobble content	0.75	Too acid	0.50
		Cobble content	0.99				
Rock outcrop	15	Not rated		Not rated		Not rated	
HeF:							
Hazleton	55	Poor		Poor		Poor	
		Too acid	0.00	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.12	Slope	0.00	Hard to reclaim	0.00
		Stone content	0.98	Cobble content	0.46	Rock fragments	0.00
		Cobble content	0.98	Stone content	0.93	Too acid	0.50
Dekalb	25	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Low strength	0.00	Depth to bedrock	0.10
		Too acid	0.50	Cobble content	0.75	Too acid	0.50
		Cobble content	0.99				
Rock outcrop	15	Not rated		Not rated		Not rated	
HlF:							
Hazleton	50	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Hard to reclaim	0.00
		Low content of organic matter	0.24	Low strength	0.00	Rock fragments	0.00
		Cobble content	0.98	Cobble content	0.46	Slope	0.00
						Too acid	0.50
Lehew	20	Fair		Poor		Poor	
		Droughty	0.01	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.24	Slope	0.00	Rock fragments	0.00
		Too acid	0.50	Low strength	0.00	Too acid	0.88
		Depth to bedrock	0.92	Cobble content	0.82	Depth to bedrock	0.92
Dekalb	15	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Slope	0.00	Rock fragments	0.00
		Low content of organic matter	0.24	Low strength	0.00	Depth to bedrock	0.10
		Too acid	0.50	Cobble content	0.72	Too acid	0.50
		Cobble content	0.99				
Ho:							
Holly	80	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too acid	0.97	Low strength	0.00	Rock fragments	0.97

Table 15b.--Construction Materials (Part 2)--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
HwB:							
Hustontown----------	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.14
		Too acid	0.50	Depth to saturated zone	0.14	Rock fragments	0.50
						Hard to reclaim	0.68
						Too acid	0.76
Ln:							
Lindside------------	80	Fair		Poor		Fair	
		Low content of organic matter	0.92	Low strength	0.00	Depth to saturated zone	0.76
		Water erosion	0.99	Depth to saturated zone	0.76		
LzC:							
Litz----------------	90	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Rock fragments	0.00
				Low strength	0.00	Slope	0.50
		Droughty	0.26	Cobble content	0.99	Depth to bedrock	0.65
		Too acid	0.50	No stoniness	0.99	Too acid	0.88
		Depth to bedrock	0.65				
		Stone content	0.99				
LzD:							
Litz----------------	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Rock fragments	0.00
				Low strength	0.00	Slope	0.00
		Droughty	0.26	Slope	0.50	Depth to bedrock	0.65
		Too acid	0.50	Cobble content	0.99	Too acid	0.88
		Depth to bedrock	0.65	No stoniness	0.99		
		Stone content	0.99				
LzE:							
Litz----------------	80	Fair		Poor		Poor	
		Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.00
				Low strength	0.00	Rock fragments	0.00
		Droughty	0.26	Slope	0.00	Depth to bedrock	0.65
		Too acid	0.50	Cobble content	0.99	Too acid	0.88
		Depth to bedrock	0.65	No stoniness	0.99		
		Stone content	0.99				
LzF:							
Litz----------------	80	Fair		Poor		Poor	
		Low content of	0.12	Slope	0.00	Slope	0.00
		organic matter	0.26	Low strength	0.00	Rock fragments	0.00
		Droughty	0.26	Depth to bedrock	0.00	Depth to bedrock	0.65
		Too acid	0.50	Cobble content	0.99	Too acid	0.88
		Depth to bedrock	0.65	No stoniness	0.99		
		Stone content	0.99				
Me:							
Melvin--------------	90	Fair		Poor		Poor	
		Low content of organic matter	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Water erosion	0.90	Low strength	0.00		
MhA:							
Monongahela---------	80	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.29
				Depth to saturated zone	0.29		
		Too acid	0.32			Too acid	0.88
		Water erosion	0.90			Rock fragments	0.95

Table 15b.--Construction Materials (Part 2)--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
MhB:							
Monongahela---------	85	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.29
		Too acid	0.32	Depth to saturated zone	0.29	Hard to reclaim	0.50
		Water erosion	0.90			Too acid	0.88
						Rock fragments	0.95
MhC:							
Monongahela---------	80	Fair		Poor		Fair	
		Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.29
		Too acid	0.32	Depth to saturated zone	0.29	Slope	0.37
		Water erosion	0.90			Hard to reclaim	0.50
						Too acid	0.88
						Rock fragments	0.95
MrC:							
Murrill-------------	90	Fair		Poor		Poor	
		Too acid	0.54	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.68			Slope	0.37
						Hard to reclaim	0.88
						Too acid	0.98
MrD:							
Murrill-------------	85	Fair		Poor		Poor	
		Too acid	0.54	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.68	Slope	0.50	Rock fragments	0.00
						Hard to reclaim	0.88
						Too acid	0.98
MsC:							
Murrill-------------	85	Fair		Poor		Poor	
		Too acid	0.54	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.68			Hard to reclaim	0.88
						Slope	0.96
						Too acid	0.98
MsE:							
Murrill-------------	85	Fair		Poor		Poor	
		Too acid	0.54	Low strength	0.00	Slope	0.00
		Low content of organic matter	0.68	Slope	0.00	Rock fragments	0.00
						Hard to reclaim	0.88
						Too acid	0.98
Pg:							
Philo---------------	75	Fair		Poor		Poor	
		Too acid	0.54	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.92	Depth to saturated zone	0.76	Hard to reclaim	0.68
		Water erosion	0.99			Depth to saturated zone	0.76
						Too acid	0.98
Ph:							
Philo---------------	75	Fair		Poor		Fair	
		Too acid	0.54	Low strength	0.00	Depth to saturated zone	0.76
		Low content of organic matter	0.92	Depth to saturated zone	0.76	Rock fragments	0.97
		Water erosion	0.99			Too acid	0.98

Table 15b.--Construction Materials (Part 2)--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
Ps:							
Pope----------------	90	Fair		Poor		Fair	
		Too acid	0.32	Low strength	0.00	Too acid	0.88
Px:							
Pope----------------	90	Fair		Poor		Fair	
		Too acid	0.32	Low strength	0.00	Too acid	0.88
		Water erosion	0.99				
Pz:							
Pope----------------	50	Fair		Poor		Fair	
		Too acid	0.50	Low strength	0.00	Rock fragments	0.28
						Too acid	0.59
						Hard to reclaim	0.68
Philo---------------	30	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
			0.50	Depth to saturated zone	0.53	Depth to saturated zone	0.53
		Too acid	0.50				
		Water erosion	0.99			Hard to reclaim	0.68
						Too acid	0.98
Qm:							
Quarry, limestone---	97	Not rated		Not rated		Not rated	
Qo:							
Quarry, sandstone---	95	Not rated		Not rated		Not rated	
Qs:							
Quarry, shale-------	96	Not rated		Not rated		Not rated	
ReG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Opequon-------------	40	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Depth to bedrock	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Low content of organic matter	0.12	Shrink-swell	0.12	Rock fragments	0.12
		Water erosion	0.99				
RgG:							
Rock outcrop--------	50	Not rated		Not rated		Not rated	
Rough---------------	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Too acid	0.50	Low strength	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.50			Too acid	0.50
RuD:							
Rushtown------------	90	Fair		Poor		Poor	
		Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.00
				Slope	0.50	Slope	0.00
		Too acid	0.50			Hard to reclaim	0.00
						Too acid	0.98

Table 15b.--Construction Materials (Part 2)--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
RuF:							
Rushtown------------	85	Fair		Poor		Poor	
		Low content of organic matter	0.12	Slope	0.00	Rock fragments	0.00
			0.50	Low strength	0.00	Slope	0.00
		Too acid	0.50			Hard to reclaim	0.00
						Too acid	0.98
ShC:							
Schaffenaker--------	80	Poor		Poor		Fair	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.10
		Depth to bedrock	0.10	Low strength	0.00	Too sandy	0.15
		Low content of organic matter	0.12			Too acid	0.59
						Slope	0.96
		Too sandy	0.15			Rock fragments	0.97
		Too acid	0.50				
SkF:							
Schaffenaker--------	45	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Slope	0.00
		Depth to bedrock	0.10	Depth to bedrock	0.00	Depth to bedrock	0.10
		Low content of organic matter	0.12	Slope	0.00	Too sandy	0.15
						Too acid	0.59
		Too sandy	0.15			Rock fragments	0.97
		Too acid	0.50				
Rock outcrop--------	40	Not rated		Not rated		Not rated	
SnE:							
Schaffenaker--------	45	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Low content of organic matter	0.12	Depth to bedrock	0.00	Too sandy	0.15
						Too acid	0.59
		Too sandy	0.15			Rock fragments	0.97
		Too acid	0.50				
Vanderlip-----------	40	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Too sandy	0.01	Low strength	0.00	Too sandy	0.01
		Low content of organic matter	0.12			Rock fragments	0.03
						Hard to reclaim	0.50
		Stone content	0.35			Too acid	0.98
SnF:							
Schaffenaker--------	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.10	Low strength	0.00	Depth to bedrock	0.10
		Low content of organic matter	0.12	Slope	0.00	Too sandy	0.15
						Too acid	0.59
		Too sandy	0.15			Rock fragments	0.97
		Too acid	0.50				
Vanderlip-----------	40	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Too sandy	0.01	Low strength	0.00	Too sandy	0.01
		Low content of organic matter	0.12			Rock fragments	0.03
						Hard to reclaim	0.50
		Stone content	0.35			Too acid	0.98

Table 15b.--Construction Materials (Part 2)--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
SxC:							
Sideling------------	85	Poor		Poor		Poor	
		Too acid	0.00	Low strength	0.00	Hard to reclaim	0.00
		Low content of organic matter	0.12	Shrink-swell	0.89	Rock fragments	0.00
		Stone content	0.46	Depth to saturated zone	0.99	Too acid	0.50
						Slope	0.96
						Depth to saturated zone	0.99
SxE:							
Sideling------------	80	Poor		Poor		Poor	
		Too acid	0.00	Slope	0.00	Slope	0.00
		Low content of	0.12	Low strength	0.00	Rock fragments	0.00
		organic matter	0.46	Shrink-swell	0.89	Hard to reclaim	0.00
		Stone content	0.46	Depth to saturated zone	0.99	Too acid	0.50
						Depth to saturated zone	0.99
SyE:							
Sideling------------	80	Poor		Poor		Poor	
		Too acid	0.00	Low strength	0.00	Hard to reclaim	0.00
		Low content of organic matter	0.12	Slope	0.00	Slope	0.00
				Shrink-swell	0.89	Rock fragments	0.00
		Stone content	0.22	Stone content	0.97	Too acid	0.50
				Depth to saturated zone	0.99	Depth to saturated zone	0.99
Ta:							
Tioga---------------	90	Fair		Poor		Poor	
		Low content of organic matter	0.50	Low strength	0.00	Hard to reclaim	0.00
						Rock fragments	0.12
		Too acid	0.97				
		Water erosion	0.99				
TyA:							
Tygart--------------	85	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Too acid	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Low content of organic matter	0.24	Shrink-swell	0.87	Too acid	0.59
		Water erosion	0.90				
Ua:							
Udorthents----------	95	Not rated		Not rated		Not rated	
Uu:							
Urban land----------	45	Not rated		Not rated		Not rated	
Udorthents----------	45	Not rated		Not rated		Not rated	
WaB:							
Weikert-------------	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Depth to bedrock	0.00	Low strength	0.00	Rock fragments	0.00
		Too acid	0.50			Too acid	0.50

Table 15b.--Construction Materials (Part 2)--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
WaC:							
Weikert------------	85	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Low strength	0.00	Depth to bedrock	0.00
		Too acid	0.50			Slope	0.37
						Too acid	0.50
WbC:							
Weikert------------	45	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Low strength	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.12			Slope	0.37
		Too acid	0.50			Too acid	0.50
Berks--------------	40	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Depth to bedrock	0.00	Depth to bedrock	0.16
		Depth to bedrock	0.16			Slope	0.37
		Too acid	0.50			Too acid	0.59
WbD:							
Weikert------------	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Low strength	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Slope	0.50	Depth to bedrock	0.00
		Too acid	0.50			Too acid	0.50
Berks--------------	35	Poor		Poor		Poor	
		Droughty	0.00	Low strength	0.00	Slope	0.00
		Depth to bedrock	0.05	Depth to bedrock	0.00	Rock fragments	0.00
		Low content of organic matter	0.12	Slope	0.50	Depth to bedrock	0.05
		Too acid	0.50			Too acid	0.59
WkF:							
Weikert------------	50	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
		Too acid	0.50			Too acid	0.98
Berks--------------	35	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Low content of organic matter	0.00	Slope	0.00	Rock fragments	0.00
				Low strength	0.00	Depth to bedrock	0.16
		Depth to bedrock	0.16	Cobble content	0.98	Too acid	0.59
		Too acid	0.50				

Table 16.--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
AgB:							
Allegheny-----------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
AgC:							
Allegheny-----------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
AnB:							
Andover-------------	75	Somewhat limited		Very limited		Very limited	
		Seepage	0.02	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Slow refill	0.28
Ba:							
Basher--------------	75	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.02		
BbC:							
Berks---------------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.30				
BbE:							
Berks---------------	75	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.30				
		Slope	0.28				
BcD:							
Berks---------------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
		Slope	0.12				
Calvin--------------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23				
		Slope	0.12				
BcE:							
Berks---------------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Slope	0.50				
		Depth to bedrock	0.34				
Calvin--------------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	0.50				
		Depth to bedrock	0.23				
BcF:							
Berks---------------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.34				

Table 16.--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
BcF:							
Calvin	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
BeB:							
Berks	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.26				
Clearbrook	45	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.37	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.04	Thin layer	0.99		
				Piping	0.66		
				Content of large stones	0.02		
BeC:							
Berks	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.26				
		Slope	0.01				
Clearbrook	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.37	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.04	Thin layer	0.99		
		Slope	0.01	Piping	0.66		
				Content of large stones	0.02		
BkB:							
Berks	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.26				
Weikert	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53	Seepage	0.38		
BqF:							
Blackthorn	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.04	Depth to water	1.00
		Slope	0.97				
BrB:							
Brinkerton	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
				Piping	1.00	Cutbanks cave	0.10
BuB:							
Buchanan	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Slow refill	0.28
						Depth to water	0.01

Table 16.--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
BuC:							
Buchanan------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
		Slope	0.01			Slow refill	0.28
						Depth to water	0.01
BxC:							
Buchanan------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Slow refill	0.28
						Depth to water	0.01
BxE:							
Buchanan------------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
		Slope	0.28			Slow refill	0.28
						Depth to water	0.01
CbB:							
Calvin--------------	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23				
Berks---------------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
CbC:							
Calvin--------------	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23				
		Slope	0.01				
Berks---------------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
		Slope	0.01				
CkB:							
Calvin--------------	65	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23				
Klinesville---------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53	Seepage	0.31		
CkC:							
Calvin--------------	65	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23				
		Slope	0.01				
Klinesville---------	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53	Seepage	0.31		
		Slope	0.01				

Table 16.--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
CkD:							
Calvin	65	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Depth to bedrock	0.23				
		Slope	0.12				
Klinesville	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53	Seepage	0.31		
		Slope	0.12				
CkE:							
Calvin	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	0.50				
		Depth to bedrock	0.23				
Klinesville	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53	Seepage	0.31		
		Slope	0.50				
CkF:							
Calvin	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.95	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.23				
Klinesville	30	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	1.00	Seepage	0.31		
		Depth to bedrock	0.53				
ClC:							
Caneyville	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Seepage	0.47	Hard to pack	0.35		
		Slope	0.01				
ClD:							
Caneyville	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Seepage	0.47	Hard to pack	0.35		
		Slope	0.12				
ClE:							
Caneyville	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.50	Hard to pack	0.35		
		Seepage	0.47				
CnF:							
Caneyville	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Hard to pack	0.81		
		Seepage	0.47				
CrB:							
Clarksburg	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
						Cutbanks cave	0.10
				Piping	0.97		

Table 16.--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
CrC:							
Clarksburg----------	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Depth to saturated zone	1.00	Slow refill	0.30
		Slope	0.01	Piping	0.97	Cutbanks cave	0.10
CvB:							
Clearbrook----------	50	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.37	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.04	Thin layer	0.99		
				Piping	0.66		
Cavode--------------	35	Somewhat limited		Very limited		Very limited	
		Seepage	0.45	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	1.00		
Cz:							
Combs---------------	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to water	0.96
						Cutbanks cave	0.10
DkC:							
Dekalb--------------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Seepage	0.04		
				Content of large stones	0.01		
DrE:							
Dekalb--------------	70	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Seepage	0.04		
		Slope	0.12	Content of large stones	0.01		
Rock outcrop--------	15	Very limited		Not rated		Not rated	
		Depth to bedrock	1.00				
		Seepage	1.00				
		Slope	0.12				
DsB:							
Downsville----------	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
						Slow refill	0.96
DsC:							
Downsville----------	80	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
		Slope	0.01			Slow refill	0.96
Dz:							
Dunning-------------	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.19	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.18		

Table 16.--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
ErB:							
Ernest	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	0.85		
ErC:							
Ernest	80	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
		Slope	0.01			Cutbanks cave	0.10
				Piping	0.84		
HaE:							
Hazleton	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.05	Depth to water	1.00
		Slope	0.28				
				Seepage	0.03		
Dekalb	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Seepage	0.04		
		Slope	0.28	Content of large stones	0.01		
HaF:							
Hazleton	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.05	Depth to water	1.00
		Slope	1.00				
				Seepage	0.03		
Dekalb	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Slope	1.00	Seepage	0.04		
		Depth to bedrock	0.98	Content of large stones	0.01		
HdF:							
Hazleton	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
		Slope	1.00	Content of large stones	0.10		
Dekalb	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Slope	1.00	Seepage	0.04		
		Depth to bedrock	0.98	Content of large stones	0.03		
Rock outcrop	15	Very limited		Not rated		Not rated	
		Slope	1.00				
		Depth to bedrock	1.00				
		Seepage	1.00				
HeF:							
Hazleton	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.17	Depth to water	1.00
		Slope	1.00				
				Seepage	0.10		

Table 16.--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
HeF:							
Dekalb	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Slope	1.00	Content of large stones	0.08		
		Depth to bedrock	0.98	Seepage	0.04		
Rock outcrop	15	Very limited		Not rated		Not rated	
		Slope	1.00				
		Depth to bedrock	1.00				
		Seepage	1.00				
HlF:							
Hazleton	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.05	Depth to water	1.00
		Slope	1.00	Seepage	0.03		
Lehew	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.68	Depth to water	1.00
		Slope	1.00	Seepage	0.02		
		Depth to bedrock	0.68				
Dekalb	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Slope	1.00	Seepage	0.04		
		Depth to bedrock	0.98	Content of large stones	0.01		
Ho:							
Holly	80	Very limited		Very limited		Very limited	
		Seepage	1.00	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00		
				Piping	1.00		
				Seepage	0.03		
HwB:							
Hustontown	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
Ln:							
Lindside	80	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	0.99	Cutbanks cave	0.10
				Depth to saturated zone	0.95	Depth to water	0.02
LzC:							
Litz	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Thin layer	0.83	Depth to water	1.00
		Depth to bedrock	0.09	Seepage	0.12		
		Slope	0.01				
LzD:							
Litz	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Thin layer	0.83	Depth to water	1.00
		Slope	0.12	Seepage	0.12		
		Depth to bedrock	0.09				

Table 16.--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
LzE:							
Litz----------------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Thin layer	0.83	Depth to water	1.00
		Slope	0.50	Seepage	0.12		
		Depth to bedrock	0.09				
LzF:							
Litz----------------	80	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.83	Depth to water	1.00
		Seepage	0.70	Seepage	0.12		
		Depth to bedrock	0.09				
Me:							
Melvin--------------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	1.00	Slow refill	0.28
				Piping	0.98		
				Seepage	0.03		
MhA:							
Monongahela---------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	1.00		
				Seepage	0.04		
MhB:							
Monongahela---------	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	1.00		
MhC:							
Monongahela---------	80	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
		Slope	0.01	Piping	1.00		
MrC:							
Murrill-------------	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.10	Depth to water	1.00
		Slope	0.01				
MrD:							
Murrill-------------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.10	Depth to water	1.00
		Slope	0.12				
MsC:							
Murrill-------------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.06	Depth to water	1.00
MsE:							
Murrill-------------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.06	Depth to water	1.00
		Slope	0.28				
Pg:							
Philo---------------	75	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Depth to saturated zone	0.95	Cutbanks cave	1.00
						Depth to water	0.02

Table 16.--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
Ph:							
Philo	75	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Cutbanks cave	0.10
				Depth to saturated zone	0.95	Depth to water	0.02
Ps:							
Pope	90	Very limited		Somewhat limited		Somewhat limited	
		Seepage	1.00	Seepage	0.04	Depth to water	0.96
						Cutbanks cave	0.10
Px:							
Pope	90	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to water	0.96
						Cutbanks cave	0.10
Pz:							
Pope	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.12	Cutbanks cave	1.00
						Depth to water	0.81
Philo	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Depth to water	0.01
				Seepage	0.01		
Qm:							
Quarry, limestone	97	Very limited		Not rated		Not rated	
		Seepage	1.00				
		Depth to bedrock	1.00				
		Slope	1.00				
Qo:							
Quarry, sandstone	95	Very limited		Not rated		Not rated	
		Depth to bedrock	1.00				
		Slope	1.00				
		Seepage	0.57				
Qs:							
Quarry, shale	96	Very limited		Not rated		Not rated	
		Depth to bedrock	1.00				
		Slope	1.00				
ReG:							
Rock outcrop	50	Very limited		Not rated		Not rated	
		Slope	1.00				
		Depth to bedrock	1.00				
		Seepage	1.00				
Opequon	40	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Hard to pack	0.22		
		Seepage	1.00				
RgG:							
Rock outcrop	50	Very limited		Not rated		Not rated	
		Slope	1.00				
		Depth to bedrock	1.00				
		Seepage	1.00				

Table 16.--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
RgG:							
Rough----------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.94				
RuD:							
Rushtown------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.69	Depth to water	1.00
		Slope	0.12				
RuF:							
Rushtown------------	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.69	Depth to water	1.00
		Slope	1.00				
ShC:							
Schaffenaker---------	80	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Seepage	0.08		
SkF:							
Schaffenaker---------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Slope	1.00	Seepage	0.08		
		Depth to bedrock	0.98				
Rock outcrop---------	40	Very limited		Not rated		Not rated	
		Slope	1.00				
		Depth to bedrock	1.00				
		Seepage	1.00				
SnE:							
Schaffenaker---------	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Seepage	0.08		
		Slope	0.28				
Vanderlip-----------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.30	Depth to water	1.00
		Slope	0.28				
SnF:							
Schaffenaker---------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.98	Depth to water	1.00
		Slope	1.00	Seepage	0.08		
		Depth to bedrock	0.98				
Vanderlip-----------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.30	Depth to water	1.00
		Slope	1.00				
SxC:							
Sideling------------	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.79	Cutbanks cave	1.00
				Depth to saturated zone	0.53	Slow refill	1.00
						Depth to water	0.21
SxE:							
Sideling------------	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.79	Cutbanks cave	1.00
		Slope	0.28	Depth to saturated zone	0.53	Slow refill	1.00
						Depth to water	0.21

Table 16.--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
SyE:							
Sideling	80	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.79	Cutbanks cave	1.00
		Slope	0.28	Depth to saturated zone	0.53	Slow refill	1.00
						Depth to water	0.21
Ta:							
Tioga	90	Very limited		Very limited		Very limited	
		Seepage	1.00	Content of large stones	1.00	Cutbanks cave	1.00
				Seepage	0.50	Content of large stones	1.00
						Depth to water	0.96
TyA:							
Tygart	85	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Piping	0.03	Cutbanks cave	0.10
Ua:							
Udorthents	95	Not rated		Not rated		Not rated	
Uu:							
Urban land	45	Not rated		Not rated		Not rated	
Udorthents	45	Not rated		Not rated		Not rated	
WaB:							
Weikert	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.53	Thin layer	1.00	Depth to water	1.00
WaC:							
Weikert	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.53	Thin layer	1.00	Depth to water	1.00
		Slope	0.01				
WbC:							
Weikert	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53	Seepage	0.38		
		Slope	0.01				
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.26				
		Slope	0.01				
WbD:							
Weikert	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.53	Seepage	0.38		
		Slope	0.12				
Berks	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.34				
		Slope	0.12				

Table 16.--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
WkF:							
Weikert-------------	50	Somewhat limited		Very limited		Very limited	
		Slope	0.99	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.69	Seepage	0.31		
Berks---------------	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Slope	0.99				
		Depth to bedrock	0.26				

Table 17.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
AgB:												
Allegheny-------	0-8	Loam	CL, ML	A-4	0	0	90-100	80-100	65-100	55-95	15-35	NP-10
	8-42	Silty clay loam, loam, gravelly clay loam	CL, ML, SC, SM	A-4, A-6	0	0-5	65-100	60-100	45-95	35-80	15-35	NP-15
	42-65	Gravelly loam, sandy loam, clay loam	CL, GC, ML, SM	A-1, A-2, A-4, A-6	0	0-10	65-100	55-100	35-95	20-75	15-35	NP-15
AgC:												
Allegheny-------	0-7	Loam	CL, ML	A-4	0	0	90-100	80-100	65-100	55-95	15-35	NP-10
	7-41	Silty clay loam, loam, gravelly clay loam	CL, SC, SM, ML	A-4, A-6	0	0-5	65-100	60-100	45-95	35-80	15-35	NP-15
	41-65	Gravelly loam, sandy loam, clay loam	SM, ML, GC, CL	A-1, A-2, A-4, A-6	0	0-10	65-100	55-100	35-95	20-75	15-35	NP-15
AnB:												
Andover---------	0-8	Gravelly loam	CL, GM, ML, SC-SM	A-2, A-4, A-6	0	0-5	65-75	65-75	60-70	30-60	20-35	2-11
	8-19	Gravelly loam, gravelly clay loam, cobbly sandy clay loam	SM, GM, ML, CL	A-2, A-4, A-6	0-1	0-20	50-100	45-90	40-90	20-80	20-35	2-15
	19-46	Loam, gravelly clay loam, cobbly sandy clay loam	CL, ML, SM, GM	A-2, A-4, A-6	0-1	0-20	80-95	65-85	60-85	30-60	20-35	2-15
	46-65	Gravelly sandy clay loam, cobbly sandy loam, loam	CL, ML, GM, SM	A-6, A-4, A-2	0-1	5-30	70-95	55-90	50-75	25-60	20-35	2-15

Table 17.--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	
Ba:												
Basher----------	0-8	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4	0	0-5	80-100	80-100	45-100	20-90	15-25	2-7
	8-22	Silt loam, loam, gravelly sandy loam	CL-ML, ML, SC-SM, SM	A-1, A-2, A-4	0	0-5	75-100	70-100	40-100	20-90	15-25	2-7
	22-46	Loam, gravelly sandy loam, gravelly loamy sand	SC-SM, CL-ML, SM, ML	A-1, A-2, A-4	0	0-5	60-95	50-85	40-85	20-75	15-25	2-7
	46-65	Gravelly sandy loam, loam, fine sandy loam, very gravelly loamy sand	SW, SM, ML, GP	A-1, A-2, A-3, A-4	0	0-10	30-95	25-85	20-85	3-55	15-25	NP-7
BbC:												
Berks-----------	0-1	Highly decomposed plant material	PT	A-8	0-3	5-15	---	---	---	---	7-7	NP
	1-4	Channery loam	GM, SM, SC, GC	A-2, A-4	0	15-30	40-80	35-70	30-60	25-45	25-36	5-10
	4-21	Very channery loam, channery loam, channery silt loam	GC, SM, GM, SC	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	21-24	Extremely channery loam, very channery loam, very channery silt loam	SM, GM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
BbE:												
Berks-----------	0-1	Highly decomposed plant material	PT	A-8	0-3	5-15	---	---	---	---	7-7	NP
	1-4	Channery loam	SM, GM, GC, SC	A-2, A-4	0	15-30	40-80	35-70	30-60	25-45	25-36	5-10
	4-21	Very channery loam, channery loam, channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	21-24	Extremely channery loam, very channery loam, very channery silt loam	GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
BcD:												
Berks-----------	0-5	Channery loam	SC, GC, ML, GM	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	5-19	Very channery loam, very channery silt loam, channery silt loam	SM, SC, GM, GC	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	19-23	Extremely channery loam, very channery loam, extremely channery silt loam	GC-GM, GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	23-27	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
BcD:												
Calvin----------	0-3	Channery loam	ML	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-11
	3-18	Very channery loam, channery loam, channery silt loam	GM, ML, SM	A-2, A-4, A-6	0	0-15	70-95	55-90	40-85	30-75	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	GC, GM, SM, SC	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---
BcE:												
Berks-----------	0-5	Channery loam	SC, ML, GM, GC	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	5-19	Very channery loam, very channery silt loam, channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	19-23	Extremely channery loam, very channery loam, extremely channery silt loam	GC-GM, GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	23-27	Bedrock	---	---	---	---	---	---	---	---	---	---
Calvin----------	0-3	Channery loam	ML	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-11
	3-18	Very channery loam, channery loam, channery silt loam	GM, ML, SM	A-2, A-4, A-6	0	0-15	70-95	55-90	40-85	30-75	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	GC, SC, SM, GM	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
BcF:												
Berks-----------	0-5	Channery loam	GC, GM, SC, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	5-19	Very channery loam, very channery silt loam, channery silt loam	GM, SC, SM, GC	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	19-23	Extremely channery loam, very channery loam, extremely channery silt loam	SM, GM, GC-GM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	23-27	Bedrock	---	---	---	---	---	---	---	---	---	---
Calvin----------	0-3	Channery loam	ML	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-11
	3-18	Very channery loam, channery loam, channery silt loam	GM, ML, SM	A-2, A-4, A-6	0	0-15	70-95	55-90	40-85	30-75	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	SM, SC, GM, GC	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---
BeB:												
Berks-----------	0-7	Channery silt loam	ML, SC, GM, GC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	7-21	Very channery silt loam, channery silt loam, channery loam	GC, GM, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	21-25	Extremely channery silt loam, very channery loam, extremely channery loam	SM, GM, GC-GM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	25-29	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
BeB:												
Clearbrook------	0-8	Channery silt loam	CL-ML, CL	A-4, A-6	0	5-25	75-90	60-85	55-75	50-70	20-30	6-15
	8-19	Very channery silty clay loam, channery silt loam, channery loam	CL	A-6	0	10-50	75-90	60-85	55-75	50-70	25-40	10-20
	19-22	Extremely channery silty clay, very channery silty clay loam, very channery silt loam	SC, CL, GC	A-6, A-7	0	10-90	35-85	35-75	35-65	30-60	35-45	15-25
	22-26	Bedrock	---	---	---	---	---	---	---	---	---	---
BeC:												
Berks-----------	0-7	Channery silt loam	ML, GC, GM, SC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	7-21	Very channery silt loam, channery silt loam, channery loam	GC, GM, SM, SC	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	21-25	Extremely channery silt loam, very channery loam, extremely channery loam	GM, GC-GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	25-29	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas-ticity index
	In				Pct	Pct					Pct	
BeC:												
Clearbrook------	0-8	Channery silt loam	CL-ML, CL	A-4, A-6	0	5-25	75-90	60-85	55-75	50-70	20-30	6-15
	8-19	Very channery silty clay loam, channery silt loam, channery loam	CL	A-6	0	10-50	75-90	60-85	55-75	50-70	25-40	10-20
	19-22	Extremely channery silty clay, very channery silty clay loam, very channery silt loam	CL, GC, SC	A-6, A-7	0	10-90	35-85	35-75	35-65	30-60	35-45	15-25
	22-26	Bedrock	---	---	---	---	---	---	---	---	---	---
BkB:												
Berks-----------	0-7	Channery silt loam	ML, GC, SC, GM	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	7-21	Very channery silt loam, channery silt loam, channery loam	GC, SM, SC, GM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	21-25	Extremely channery silt loam, very channery loam, extremely channery loam	GC-GM, GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	25-29	Bedrock	---	---	---	---	---	---	---	---	---	---
Weikert---------	0-6	Channery silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	6-14	Very channery silt loam, channery loam	GM, GP-GM	A-1, A-2	0-1	0-20	30-70	25-70	20-60	5-35	28-36	3-9
	14-18	Extremely channery silt loam, extremely channery loam	GM, GP-GM	A-1, A-2	0-5	5-35	15-60	10-50	5-40	5-30	28-36	3-9
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
BqF:												
Blackthorn------	0-1	Bouldery slightly decomposed plant material	PT	A-8	25-65	5-15	---	---	---	---	---	---
	1-2	Bouldery highly decomposed plant material	PT	A-8	25-65	5-15	---	---	---	---	---	---
	2-7	Very gravelly sandy loam	ML, CL-ML, SC-SM, SM	A-1, A-2, A-4	0-3	5-15	65-90	60-85	35-70	15-55	15-27	NP-7
	7-47	Gravelly sandy loam, very gravelly sandy loam, gravelly loam	GM, SC, SC-SM, SM	A-1, A-2, A-4	0	5-30	40-90	25-90	20-60	10-45	18-30	1-9
	47-65	Clay, silty clay, channery silty clay loam	CL, CH	A-6, A-7	0	0-10	85-100	70-100	65-95	55-90	30-65	15-40
BrB:												
Brinkerton------	0-7	Silt loam	ML	A-4	0	0-10	90-100	85-100	85-100	75-100	25-35	4-10
	7-21	Silty clay loam, silt loam	ML	A-6, A-7, A-4, A-5	0	0-10	90-100	85-100	85-100	65-100	30-45	5-15
	21-45	Channery silty clay loam, silt loam	ML	A-4, A-5, A-6, A-7	0	0-10	75-100	60-100	60-100	55-100	30-45	5-15
	45-60	Extremely channery loam, channery silt loam, silt loam	SM, CL, ML, SC	A-1, A-2, A-4, A-6	0	0-50	70-90	25-85	25-85	20-75	30-40	5-15
BuB:												
Buchanan--------	0-8	Gravelly loam	CL, GM, ML, GC-GM	A-2, A-4, A-6	0	0-10	50-100	45-75	40-75	30-65	20-35	2-11
	8-33	Gravelly loam, gravelly clay loam, sandy clay loam	CL, GM, ML, SM	A-2, A-4, A-6	0	0-20	50-100	45-90	40-90	20-80	20-35	2-15
	33-65	Gravelly loam, very gravelly clay loam, sandy clay loam	SM, GM, CL, ML	A-2, A-4, A-6	0	0-20	30-100	25-80	20-75	20-60	20-35	2-15

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
BuC:												
Buchanan--------	0-8	Gravelly loam	GC-GM, CL, GM, ML	A-2, A-4, A-6	0	0-10	50-100	45-75	40-75	30-65	20-35	2-11
	8-33	Gravelly loam, gravelly clay loam, sandy clay loam	CL, SM, ML, GM	A-2, A-4, A-6	0	0-20	50-100	45-90	40-90	20-80	20-35	2-15
	33-65	Gravelly loam, very gravelly clay loam, sandy clay loam	SM, ML, GM, CL	A-6, A-2, A-4	0	0-20	30-100	25-80	20-75	20-60	20-35	2-15
BxC:												
Buchanan--------	0-3	Slightly decomposed plant material	PT	A-8	5-25	5-20	---	---	---	---	---	---
	3-4	Moderately decomposed plant material	PT	A-8	5-25	5-20	---	---	---	---	---	---
	4-5	Loam	CL, GM, ML, SC-SM	A-2, A-4, A-6	0	0-5	75-100	70-90	40-70	30-60	20-35	2-11
	5-33	Gravelly loam, clay loam, gravelly sandy clay loam	SM, ML, CL, GM	A-2, A-4, A-6	0-3	0-20	50-100	45-90	40-90	20-80	20-35	2-15
	33-65	Gravelly loam, sandy clay loam, very gravelly clay loam	SM, CL, GM, ML	A-2, A-4, A-6	0-3	0-20	30-100	25-80	20-75	20-60	20-35	2-15
BxE:												
Buchanan--------	0-2	Slightly decomposed plant material	PT	A-8	5-25	5-20	---	---	---	---	---	---
	2-4	Loam	SC-SM, ML, GM, CL	A-2, A-4, A-6	0	0-5	75-100	70-90	40-70	30-60	20-35	2-11
	4-30	Gravelly loam, clay loam, gravelly sandy clay loam	ML, GM, CL, SM	A-2, A-4, A-6	0-3	0-20	50-100	45-90	40-90	20-80	20-35	2-15
	30-65	Gravelly loam, sandy clay loam, very gravelly clay loam	SM, ML, CL, GM	A-2, A-4, A-6	0-3	0-20	30-100	25-80	20-75	20-60	20-35	2-15

Table 17.--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	
CbB:												
Calvin	0-3	Channery loam	CL, ML	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-14
	3-18	Very channery loam, channery loam, channery silt loam	ML, SM, GM	A-2, A-4, A-6	0	0-15	70-95	55-90	40-60	30-60	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	GM, GC, SM, SC	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---
Berks	0-5	Channery loam	GC, GM, ML, SC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	5-19	Very channery loam, very channery silt loam, channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	19-23	Extremely channery loam, very channery loam, extremely channery silt loam	GC-GM, SM, GM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	23-27	Bedrock	---	---	---	---	---	---	---	---	---	---
CbC:												
Calvin	0-3	Channery loam	ML, CL	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-14
	3-18	Very channery loam, channery loam, channery silt loam	ML, GM, SM	A-6, A-2, A-4	0	0-15	70-95	55-90	40-60	30-60	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
CbC:												
Berks-----------	0-5	Channery loam	ML, SC, GM, GC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	5-19	Very channery loam, very channery silt loam, channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	19-23	Extremely channery loam, very channery loam, extremely channery silt loam	GC-GM, GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	23-27	Bedrock	---	---	---	---	---	---	---	---	---	---
CkB:												
Calvin----------	0-3	Channery loam	CL, ML	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-14
	3-18	Very channery loam, channery loam, channery silt loam	ML, SM, GM	A-2, A-4, A-6	0	0-15	70-95	55-90	40-60	30-60	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	GC, GM, SM, SC	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---
Klinesville-----	0-2	Channery loam	SM, GM	A-2, A-4	0	0-10	55-85	50-70	35-50	25-40	20-35	NP-9
	2-14	Very channery loam, channery silt loam, extremely channery loam	GM, GP, SM, SP	A-1, A-2, A-4	0	0-10	25-75	15-55	10-50	4-40	20-35	NP-9
	14-18	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1, A-2	0	0-20	15-60	10-50	10-40	4-30	20-35	NP-7
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
CkC:												
Calvin----------	0-3	Channery loam	CL, ML	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-14
	3-18	Very channery loam, channery loam, channery silt loam	SM, GM, ML	A-6, A-2, A-4	0	0-15	70-95	55-90	40-60	30-60	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	SC, GC, GM, SM	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---
Klinesville-----	0-2	Channery loam	SM, GM	A-4, A-2	0	0-10	55-85	50-70	35-50	25-40	20-35	NP-9
	2-14	Very channery loam, channery silt loam, extremely channery loam	SM, GP, GM, SP	A-1, A-2, A-4	0	0-10	25-75	15-55	10-50	4-40	20-35	NP-9
	14-18	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1, A-2	0	0-20	15-60	10-50	10-40	4-30	20-35	NP-7
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---
CkD:												
Calvin----------	0-3	Channery loam	ML, CL	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-14
	3-18	Very channery loam, channery loam, channery silt loam	GM, ML, SM	A-6, A-2, A-4	0	0-15	70-95	55-90	40-60	30-60	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	SC, SM, GM, GC	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
CkD:												
Klinesville-----	0-2	Channery loam	GM, SM	A-4, A-2	0	0-10	55-85	50-70	35-50	25-40	20-35	NP-9
	2-14	Very channery loam, channery silt loam, extremely channery loam	GM, GP, SM, SP	A-1, A-2, A-4	0	0-10	25-75	15-55	10-50	4-40	20-35	NP-9
	14-18	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1, A-2	0	0-20	15-60	10-50	10-40	4-30	20-35	NP-7
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---
CkE:												
Calvin----------	0-3	Channery loam	ML, CL	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-14
	3-18	Very channery loam, channery loam, channery silt loam	GM, ML, SM	A-2, A-4, A-6	0	0-15	70-95	55-90	40-60	30-60	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---
Klinesville-----	0-2	Channery loam	SM, GM	A-4, A-2	0	0-10	55-85	50-70	35-50	25-40	20-35	NP-9
	2-14	Very channery loam, channery silt loam, extremely channery loam	GM, GP, SP, SM	A-1, A-2, A-4	0	0-10	25-75	15-55	10-50	4-40	20-35	NP-9
	14-18	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1, A-2	0	0-20	15-60	10-50	10-40	4-30	20-35	NP-7
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
CkF:												
Calvin----------	0-3	Channery loam	CL, ML	A-4	0	0-15	70-95	70-90	65-75	55-75	22-38	NP-14
	3-18	Very channery loam, channery loam, channery silt loam	ML, SM, GM	A-2, A-4, A-6	0	0-15	70-95	55-90	40-60	30-60	22-38	NP-11
	18-26	Extremely channery loam, very channery loam, very channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4, A-6	0	0-20	35-75	15-45	15-45	15-40	23-39	3-13
	26-30	Bedrock	---	---	---	---	---	---	---	---	---	---
Klinesville-----	0-2	Channery loam	SM, GM	A-4, A-2	0	0-10	55-85	50-70	35-50	25-40	20-35	NP-9
	2-14	Very channery loam, channery silt loam, extremely channery loam	SP, GP, GM, SM	A-1, A-2, A-4	0	0-10	25-75	15-55	10-50	4-40	20-35	NP-9
	14-18	Very channery loam, extremely channery loam, very channery silt loam	SM, GM	A-1, A-2	0	0-20	15-60	10-50	10-40	4-30	20-35	NP-7
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---
ClC:												
Caneyville------	0-4	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0-5	80-100	75-100	75-100	65-95	20-35	11-20
	4-12	Gravelly silt loam, silty clay loam, loam	CL	A-6	0	0-5	65-100	60-100	45-100	40-95	20-45	11-30
	12-24	Silty clay, clay, channery silty clay loam	CH	A-7	0-15	0-15	70-100	55-100	50-100	40-95	50-75	30-45
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
ClD:												
Caneyville------	0-4	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0-5	80-100	75-100	75-100	65-95	20-35	11-20
	4-12	Gravelly silt loam, gravelly loam, silty clay loam	CL	A-6	0	0-5	65-100	60-100	45-100	40-95	20-45	11-30
	12-24	Silty clay, clay, channery silty clay loam	CH	A-7	0-15	0-15	70-100	55-100	50-100	40-95	50-75	30-45
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
ClE:												
Caneyville------	0-4	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0-5	80-100	75-100	75-100	65-95	20-35	11-20
	4-12	Gravelly silt loam, gravelly loam, silty clay loam	CL	A-6	0	0-5	65-100	60-100	45-100	40-95	20-45	11-30
	12-24	Silty clay, clay, channery silty clay loam	CH	A-7	0-15	0-15	70-100	55-100	50-100	40-95	50-75	30-45
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
CnF:												
Caneyville------	0-4	Silty clay loam	CL	A-6	0	0-5	80-100	75-100	75-100	65-95	20-35	11-20
	4-24	Silty clay, clay, channery silty clay loam	CH	A-7	0-15	0-15	70-100	55-100	50-100	40-95	50-75	30-45
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
CrB:												
Clarksburg------	0-12	Gravelly silt loam	CL, ML	A-4, A-6	0	0-15	80-100	65-95	60-80	55-75	25-35	2-11
	12-29	Silty clay loam, loam, gravelly silt loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0-10	80-100	65-100	60-95	55-85	25-45	6-17
	29-60	Gravelly clay loam, clay loam, silty clay loam	CL, CL-ML, SC-SM, SC	A-4, A-6, A-7	0	0-15	75-100	55-100	50-95	45-90	20-45	4-20

Table 17.--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	
CrC:												
Clarksburg------	0-12	Gravelly silt loam	ML, CL	A-4, A-6	0	0-15	80-100	65-95	60-80	55-75	25-35	2-11
	12-29	Silty clay loam, loam, gravelly silt loam	CL-ML, ML, CL	A-4, A-6, A-7	0	0-10	80-100	65-100	60-95	55-85	25-45	6-17
	29-60	Gravelly clay loam, clay loam, silty clay loam	SC-SM, CL-ML, SC, CL	A-4, A-6, A-7	0	0-15	75-100	55-100	50-95	45-90	20-45	4-20
CvB:												
Clearbrook------	0-8	Silt loam	CL, CL-ML	A-4, A-6	0	0-15	90-100	75-100	65-85	55-75	20-30	6-15
	8-19	Very channery silty clay loam, channery silt loam, channery loam	CL	A-6	0	10-50	75-90	60-85	55-75	50-70	25-40	10-20
	19-22	Extremely channery silty clay, very channery silty clay loam, very channery silt loam	SC, GC, CL	A-6, A-7	0	10-50	60-85	50-75	35-65	30-60	35-45	15-25
	22-26	Bedrock	---	---	---	---	---	---	---	---	---	---
Cavode----------	0-12	Silt loam	CL, ML	A-4	0	0-5	90-100	80-100	80-95	75-95	20-35	2-12
	12-51	Silty clay loam, silty clay, clay	CL, CL-ML, ML	A-4, A-6, A-7	0	0-5	85-100	80-100	80-95	70-95	25-50	3-25
	51-62	Very channery silty clay loam, channery silt loam, clay	GC, CL, ML, GM	A-2, A-4, A-6	0	0-45	50-100	35-100	30-80	25-75	25-50	2-25
	62-66	Bedrock	---	---	---	---	---	---	---	---	---	---
Cz:												
Combs-----------	0-20	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	90-100	75-100	60-85	25-55	0-25	NP-5
	20-53	Fine sandy loam, loam, silt loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	90-100	75-100	65-100	30-80	0-25	NP-5
	53-65	Fine sandy loam, loam, sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	90-100	75-100	65-100	30-80	0-25	NP-8

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
DkC:												
Dekalb----------	0-1	Highly decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	1-4	Channery sandy loam	CL-ML, SM, GM, ML	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	10-32	NP-10
	4-15	Very channery sandy loam, channery loamy sand, channery loam	GM, GC-GM, SM, ML	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	15-24	Extremely flaggy sandy loam, channery loam, very flaggy loamy sand	SC, SM, GM, GC	A-1, A-2, A-4	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
DrE:												
Dekalb----------	0-1	Bouldery highly decomposed plant material	PT	A-8	25-65	15-50	---	---	---	---	---	---
	1-3	Channery sandy loam	SM, ML, GM, CL-ML	A-1, A-2, A-4	3-11	5-40	50-85	40-75	40-75	20-55	10-32	NP-10
	3-24	Very channery sandy loam, channery loam, channery sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	24-34	Extremely flaggy sandy loam, channery sandy loam, very flaggy loamy sand	SC, SM, GM, GC	A-1, A-2, A-4	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	34-38	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
DsB:												
Downsville------	0-10	Gravelly loam	SM, CL, ML	A-2, A-4, A-6	0	0-10	60-85	55-80	45-70	30-65	15-30	3-11
	10-18	Gravelly loam, very gravelly sandy loam, gravelly fine sandy loam	SM, CL, GM, ML	A-2, A-4, A-6	0	5-15	60-85	55-80	45-70	30-65	15-30	3-15
	18-30	Very gravelly loam, very gravelly sandy clay loam, very gravelly clay loam	SC, CL, GC, GM	A-2, A-4, A-6	0	5-20	50-80	45-80	40-75	30-70	25-45	3-20
	30-99	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly sandy loam	GC, CL, GM, SC	A-2, A-4, A-6	0	0-15	50-80	45-80	40-75	30-70	15-35	3-15
DsC:												
Downsville------	0-7	Gravelly loam	CL, ML, SM	A-2, A-4, A-6	0	0-10	60-85	55-80	45-70	30-65	15-30	3-11
	7-15	Gravelly loam, very gravelly sandy loam, gravelly fine sandy loam	SM, CL, GM, ML	A-2, A-4, A-6	0	5-15	60-85	55-80	45-70	30-65	15-30	3-15
	15-27	Very gravelly clay loam, very gravelly sandy clay loam, very gravelly loam	GM, CL, GC, SC	A-2, A-4, A-6	0	5-20	50-80	45-80	40-75	30-70	25-45	3-20
	27-99	Very gravelly sandy clay loam, very gravelly clay loam, very gravelly sandy loam	CL, GC, GM, SC	A-2, A-4, A-6	0	0-15	50-80	45-80	40-75	30-70	15-35	3-15

Table 17.--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	
Dz:												
Dunning---------	0-12	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	85-95	34-42	15-22
	12-46	Silty clay, clay, silty clay loam	CL, CH	A-7	0	0	100	95-100	90-100	85-95	45-70	20-40
	46-65	Stratified silty clay to clay loam to silt loam to gravelly sandy loam	CL, CL-ML, CH	A-4, A-5, A-6, A-7	0	0-5	85-100	70-100	60-100	55-95	25-70	7-40
ErB:												
Ernest----------	0-7	Silt loam	CL-ML, CL	A-4, A-6	0	0-10	85-100	80-100	70-95	60-95	20-40	4-15
	7-27	Channery silty clay loam, silt loam, channery silt loam	CL, CL-ML	A-4, A-6, A-7	0-5	0-15	75-100	70-100	65-90	55-90	25-50	6-22
	27-43	Channery silty clay loam, silt loam, channery clay loam	CL, GM, ML, SC-SM	A-4, A-6, A-7	0-5	0-20	70-95	55-95	55-90	45-90	20-45	4-18
	43-65	Channery silt loam, silty clay loam, clay loam	CL, GC, SC-SM	A-4, A-6, A-7	0-5	0-20	70-95	45-95	45-90	40-90	25-50	6-22
ErC:												
Ernest----------	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0-10	85-100	80-100	70-95	60-95	20-40	4-15
	6-26	Channery silty clay loam, silt loam, channery silt loam	CL, CL-ML	A-4, A-6, A-7	0-5	0-15	75-100	70-100	65-90	55-90	25-50	6-22
	26-42	Channery silty clay loam, silt loam, channery clay loam	CL, GM, ML, SC-SM	A-4, A-6, A-7	0-5	0-20	70-95	55-95	55-90	45-90	20-45	4-18
	42-65	Channery silt loam, silty clay loam, clay loam	CL, GC, SC-SM	A-4, A-6, A-7	0-5	0-20	70-95	45-95	45-90	40-90	25-50	6-22

Table 17.--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	
HaE:												
Hazleton--------	0-1	Slightly decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	1-2	Moderately decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	2-5	Channery loam	SM, GM, ML, SC-SM	A-4	0-5	0-50	60-85	50-80	50-70	35-55	10-25	NP-8
	5-49	Very channery loam, extremely channery sandy loam, channery loam	SC, GM, ML, SM	A-1, A-2, A-4	0-5	0-50	60-95	45-90	35-70	20-55	15-30	NP-8
	49-65	Very channery sandy loam, extremely channery loam, very channery loamy sand	GM, GC, SC, SM	A-1, A-2, A-4	2-10	5-60	50-80	35-75	25-65	15-50	15-30	NP-8
Dekalb----------	0-1	Highly decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	1-4	Channery sandy loam	GM, CL-ML, ML, SM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	10-32	NP-10
	4-15	Very channery sandy loam, channery loam, channery sandy loam	GC-GM, SM, ML, GM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	15-24	Very channery sandy loam, flaggy sandy loam, very flaggy loamy sand	SC, SM, GC, GM	A-1, A-2, A-4	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
HaF:												
Hazleton--------	0-1	Slightly decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	1-2	Moderately decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	2-5	Channery loam	SM, GM, SC-SM, ML	A-4	0-5	0-50	60-85	50-80	50-70	35-55	10-25	NP-8
	5-49	Very channery loam, extremely channery sandy loam, channery loam	GM, ML, SM, SC	A-1, A-2, A-4	0-5	0-50	60-95	45-90	35-70	20-55	15-30	NP-8
	49-65	Very channery sandy loam, extremely channery loam, very channery loamy sand	GM, SM, GC, SC	A-1, A-2, A-4	2-10	5-60	50-80	35-75	25-65	15-50	15-30	NP-8
Dekalb----------	0-1	Highly decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	1-4	Channery sandy loam	GM, CL-ML, SM, ML	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	10-32	NP-10
	4-15	Very channery sandy loam, channery loam, channery sandy loam	GM, ML, SM, GC-GM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	15-24	Very channery sandy loam, flaggy sandy loam, very flaggy loamy sand	GM, SC, GC, SM	A-1, A-2, A-4	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
HdF:												
Hazleton--------	0-1	Bouldery slightly decomposed plant material	PT	A-8	25-65	15-50	---	---	---	---	---	---
	1-2	Bouldery moderately decomposed plant material	PT	A-8	25-65	15-50	---	---	---	---	---	---
	2-5	Channery sandy loam	GM, ML, SC-SM, SM	A-4	0-5	0-50	60-85	50-80	50-70	35-55	10-25	NP-8
	5-49	Very channery sandy loam, extremely channery sandy loam, channery loam	GM, ML, SC, SM	A-1, A-2, A-4	0-5	0-50	60-95	45-90	35-70	20-55	15-30	NP-8
	49-65	Very channery loamy sand, very channery sandy loam, extremely channery loam	SM, SC, GM, GC	A-1, A-2, A-4	2-10	5-60	50-80	35-75	25-65	15-50	15-30	NP-8
Dekalb----------	0-1	Bouldery highly decomposed plant material	PT	A-8	25-65	15-30	---	---	---	---	---	---
	1-4	Channery sandy loam	SM, CL-ML, GM, ML	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	10-32	NP-10
	4-15	Very channery sandy loam, channery loam, channery sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	15-24	Very channery sandy loam, flaggy sandy loam, very flaggy loamy sand	SC, SM, GC, GM	A-1, A-2, A-4	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
HeF:												
Hazleton--------	0-1	Extremely bouldery slightly decomposed plant material	PT	A-8	65-95	15-50	---	---	---	---	---	---
	1-2	Extremely bouldery moderately decomposed plant material	PT	A-8	65-95	15-50	---	---	---	---	---	---
	2-5	Channery sandy loam	GM, ML, SC-SM, SM	A-4	0-5	0-50	60-85	50-80	50-70	35-55	10-25	NP-8
	5-49	Very channery sandy loam, extremely channery sandy loam, channery loam	GM, ML, SC, SM	A-1, A-2, A-4	0-5	0-50	60-95	45-90	35-70	20-55	15-30	NP-8
	49-65	Very channery loamy sand, very channery sandy loam, extremely channery loam	GM, GC, SC, SM	A-1, A-2, A-4	2-10	5-60	50-80	35-75	25-65	15-50	15-30	NP-8
Dekalb----------	0-1	Extremely bouldery highly decomposed plant material	PT	A-8	65-95	15-50	---	---	---	---	---	---
	1-4	Channery sandy loam	ML, CL-ML, SM, GM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	10-32	NP-10
	4-15	Very channery sandy loam, channery loam, channery sandy loam	GC-GM, GM, ML, SM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	15-24	Very channery sandy loam, flaggy sandy loam, very flaggy loamy sand	GM, SC, SM, GC	A-1, A-2, A-4	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
HlF:												
Hazleton--------	0-1	Slightly decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	1-2	Moderately decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	2-5	Channery loam	SC-SM, SM, ML, GM	A-4	0-5	0-50	60-85	50-80	50-70	35-55	10-25	NP-8
	5-49	Very channery loam, extremely channery sandy loam, channery loam	ML, GM, SM, SC	A-1, A-2, A-4	0-5	0-50	60-95	45-90	35-70	20-55	15-30	NP-8
	49-65	Very channery sandy loam, extremely channery loam, very channery loamy sand	GM, GC, SM, SC	A-1, A-2, A-4	2-10	5-60	50-80	35-75	25-65	15-50	15-30	NP-8
Lehew-----------	0-.5	Slightly decomposed plant material	PT	A-8	5-25	15-30	---	---	---	---	---	---
	.5-6	Channery fine sandy loam	CL-ML, GM, ML, SM	A-2, A-4	0	5-30	50-90	45-80	40-75	20-55	15-30	NP-7
	6-29	Very channery sandy loam, channery fine sandy loam, channery loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	5-40	45-75	30-65	20-55	10-40	15-30	NP-7
	29-35	Very channery sandy loam, very channery fine sandy loam, channery loam	SC-SM, SM, GM, GC-GM	A-2, A-4	0	10-50	45-75	30-65	20-55	10-40	15-30	NP-7
	35-39	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas-ticity index
	In				Pct	Pct					Pct	
HlF:												
Dekalb----------	0-1	Highly decomposed plant material	PT	A-8	5-25	15-50	---	---	---	---	---	---
	1-4	Channery sandy loam	SM, ML, GM, CL-ML	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	10-32	NP-10
	4-15	Very channery sandy loam, channery loam, channery sandy loam	ML, GM, GC-GM, SM	A-1, A-2, A-4	0	5-40	50-85	40-75	40-75	20-55	15-32	NP-9
	15-24	Very channery sandy loam, flaggy sandy loam, very flaggy loamy sand	GC, GM, SC, SM	A-1, A-2, A-4	0-1	10-50	45-85	25-75	20-65	15-40	15-32	NP-9
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
Ho:												
Holly-----------	0-3	Silt loam	ML	A-4	0	0	90-100	85-100	80-100	70-90	25-35	3-10
	3-24	Silt loam, loam, sandy loam	ML, SM	A-4, A-6	0	0	85-100	75-100	70-95	45-85	20-40	3-14
	24-39	Loam, silt loam, sandy loam	SM, ML	A-2, A-4	0	0	85-100	75-100	50-95	25-80	20-40	3-10
	39-65	Gravelly sandy loam, sandy loam, stratified gravelly sand to silt loam	SP-SM, ML, SM	A-1-b, A-2, A-4	0	0-5	70-100	65-100	40-90	10-70	20-40	3-10

Table 17.--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	
HwB:												
Hustontown------	0-8	Silt loam	CL, ML	A-4	0	0-10	80-100	80-95	70-90	55-80	15-30	3-10
	8-12	Silt loam, loam, channery silt loam	CL, ML	A-4	0	0-15	80-100	80-95	70-90	55-80	15-30	3-10
	12-20	Silt loam, silty clay loam, channery loam	ML, SC, SM, CL	A-4, A-6	0	0-15	80-100	70-95	60-90	40-85	25-40	3-15
	20-30	Channery silt loam, channery silty clay loam, channery loam	CL, ML, SC, SM	A-4, A-6	0	0-15	80-100	65-95	60-90	40-85	25-40	3-15
	30-65	Channery silty clay loam, channery silt loam, loam	CL, ML, SC, SC-SM	A-2, A-4, A-6	0	0-15	60-100	40-90	35-85	25-80	20-40	3-15
Ln:												
Lindside--------	0-7	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	80-100	55-90	20-35	2-15
	7-48	Silty clay loam, silt loam	CL-ML, ML, CL	A-4, A-6	0	0	100	95-100	90-100	70-95	25-40	3-18
	48-60	Stratified gravelly sandy loam to silt loam to silty clay loam	CL, ML, SM, SC	A-2, A-4, A-6	0	0	60-100	55-100	45-100	30-95	20-40	3-18

Table 17.--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	
LzC:												
Litz	0-.5	Moderately decomposed plant material	PT	A-8	3-5	7-20	---	---	---	---	---	---
	.5-4	Channery silt loam	GM, GC, CL, ML	A-2, A-4	3-5	7-20	60-85	30-75	30-70	30-65	15-25	NP-10
	4-27	Very channery silt loam, very channery silty clay loam	GC, GC-GM, GM	A-2, A-4, A-6	4-7	15-20	40-60	15-60	14-50	13-45	15-30	NP-15
	27-31	Extremely channery silty clay loam, very channery loam, very channery silt loam	GC, GC-GM, GM, GP	A-1, A-2, A-4	4-10	15-30	30-60	10-50	5-50	5-45	15-30	NP-15
	31-35	Bedrock	---	---	---	---	---	---	---	---	---	---
LzD:												
Litz	0-.5	Moderately decomposed plant material	PT	A-8	3-5	7-20	---	---	---	---	---	---
	.5-4	Channery silt loam	CL, GC, GM, ML	A-2, A-4	3-5	7-20	60-85	30-75	30-70	30-65	15-25	NP-10
	4-27	Very channery silt loam, very channery silty clay loam	GM, GC, GC-GM	A-2, A-4, A-6	4-7	15-20	40-60	15-60	14-50	13-45	15-30	NP-15
	27-31	Extremely channery silty clay loam, very channery loam, very channery silt loam	GC, GC-GM, GM, GP	A-1, A-2, A-4	4-10	15-30	30-60	10-50	5-50	5-45	15-30	NP-15
	31-35	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
LzE:												
Litz------------	0-.5	Moderately decomposed plant material	PT	A-8	3-5	7-20	---	---	---	---	---	---
	.5-4	Channery silt loam	GM, GC, CL, ML	A-2, A-4	3-5	7-20	60-85	30-75	30-70	30-65	15-25	NP-10
	4-27	Very channery silt loam, very channery silty clay loam	GC, GC-GM, GM	A-2, A-4, A-6	4-7	15-20	40-60	15-60	14-50	13-45	15-30	NP-15
	27-31	Extremely channery silty clay loam, very channery loam, very channery silt loam	GC, GC-GM, GM, GP	A-1, A-2, A-4	4-10	15-30	30-60	10-50	5-50	5-45	15-30	NP-15
	31-35	Bedrock	---	---	---	---	---	---	---	---	---	---
LzF:												
Litz------------	0-.5	Moderately decomposed plant material	PT	A-8	3-5	7-20	---	---	---	---	---	---
	.5-4	Channery silt loam	ML, GM, CL, GC	A-2, A-4	3-5	7-20	60-85	30-75	30-70	30-65	15-25	NP-10
	4-27	Very channery silt loam, very channery silty clay loam	GC-GM, GC, GM	A-2, A-4, A-6	4-7	15-20	40-60	15-60	14-50	13-45	15-30	NP-15
	27-31	Extremely channery silty clay loam, very channery loam, very channery silt loam	GC, GC-GM, GM, GP	A-1, A-2, A-4	4-10	15-30	30-60	10-50	5-50	5-45	15-30	NP-15
	31-35	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
Me:												
Melvin----------	0-10	Silt loam	ML, CL-ML, CL	A-4	0	0	95-100	90-100	80-100	80-95	25-35	3-12
	10-36	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	80-95	25-40	5-20
	36-68	Sandy loam, silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0-5	85-100	80-100	60-100	50-95	25-40	5-20
	68-72	Stratified silt to gravelly sand			0	0-10	80-100	70-100	30-100	15-95	---	---
MhA:												
Monongahela-----	0-10	Silt loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	90-100	85-100	75-100	45-90	20-35	1-10
	10-27	Silt loam, clay loam, gravelly loam	CL-ML, CL	A-4, A-6	0	0-15	90-100	80-100	75-100	70-90	20-40	5-15
	27-53	Silt loam, sandy clay loam, gravelly loam	SM, CL, ML, SC	A-4, A-6	0	0-10	80-100	60-100	55-95	45-95	20-40	3-15
	53-65	Sandy loam, gravelly clay loam, silt loam	SM, CL, ML, SC	A-4, A-6	0	10-20	75-100	60-90	60-85	40-85	20-40	1-15
MhB:												
Monongahela-----	0-8	Silt loam	SM, CL-ML, SC-SM, ML	A-4	0	0-5	90-100	85-100	75-100	45-90	20-35	1-10
	8-30	Silt loam, clay loam, gravelly loam	CL-ML, CL	A-4, A-6	0	0-15	90-100	80-100	75-100	70-90	20-40	5-15
	30-51	Loam, gravelly sandy clay loam, silt loam	CL, SM, ML, SC	A-6, A-4	0	0-10	80-100	60-100	55-95	45-95	20-40	3-15
	51-65	Loam, gravelly clay loam, silt loam	SM, SC, ML, CL	A-4, A-6	0	10-20	75-100	60-90	60-85	40-85	20-40	1-15

Table 17.--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	
MhC:												
Monongahela-----	0-8	Silt loam	SM, SC-SM, CL-ML, ML	A-4	0	0-5	90-100	85-100	75-100	45-90	20-35	1-10
	8-28	Silt loam, clay loam, gravelly loam	CL-ML, CL	A-4, A-6	0	0-15	90-100	80-100	75-100	70-90	20-40	5-15
	28-49	Silt loam, gravelly sandy clay loam, loam	CL, SC, ML, SM	A-4, A-6	0	0-10	80-100	60-100	55-95	45-95	20-40	3-15
	49-65	Loam, gravelly clay loam, silt loam	SM, SC, ML, CL	A-4, A-6	0	10-20	75-100	60-90	60-85	40-85	20-40	1-15
MrC:												
Murrill---------	0-9	Gravelly loam	SC-SM, ML, GM, CL	A-2, A-4, A-6	0	0-5	65-80	55-70	45-65	30-65	20-40	3-15
	9-55	Gravelly clay loam, gravelly loam, gravelly sandy clay loam	CL-ML, CL	A-4, A-6, A-7	0	0-15	65-85	60-70	55-65	50-65	20-50	5-25
	55-72	Silty clay loam, clay, channery clay loam	MH, CL, CH	A-6, A-7	0	0-20	80-100	65-100	60-100	55-100	35-75	20-40
MrD:												
Murrill---------	0-9	Gravelly loam	CL, ML, GM, SC-SM	A-2, A-4, A-6	0	0-5	65-80	55-70	45-65	30-65	20-40	3-15
	9-55	Gravelly clay loam, gravelly loam, gravelly sandy clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-15	65-85	60-70	55-65	50-65	20-50	5-25
	55-72	Silty clay loam, clay, channery clay loam	CL, CH, MH	A-6, A-7	0	0-20	80-100	65-100	60-100	55-100	35-75	20-40

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
MsC:												
Murrill---------	0-9	Loam	SC-SM, ML, GM, CL	A-4, A-6	1-10	0-5	80-95	75-90	45-85	40-80	20-40	3-15
	9-43	Gravelly loam, gravelly sandy clay loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-15	65-85	60-70	55-65	50-65	20-50	5-25
	43-60	Silty clay, clay, channery clay loam	CL, MH, CH	A-6, A-7	0	0-20	80-100	65-100	60-100	55-100	35-75	20-40
MsE:												
Murrill---------	0-9	Loam	ML, SC-SM, GM, CL	A-4, A-6	1-10	0-5	80-95	75-90	45-85	40-80	20-40	3-15
	9-43	Gravelly loam, gravelly sandy clay loam, clay loam	CL, CL-ML	A-4, A-6, A-7	0	0-15	65-85	60-70	55-65	50-65	20-50	5-25
	43-60	Silty clay, clay, channery clay loam	CH, CL, MH	A-6, A-7	0	0-20	80-100	65-100	60-100	55-100	35-75	20-40
Pg:												
Philo-----------	0-9	Gravelly loam	GM, CL-ML, ML, SM	A-4	0	0-5	60-85	55-80	45-70	30-65	20-35	1-10
	9-48	Gravelly loam, silt loam, sandy loam	SM, ML, GM, CL-ML	A-4	0	0-5	60-85	55-80	45-70	30-65	20-35	1-10
	48-65	Stratified sand to gravelly loam	CL-ML, SM, ML, GM	A-1, A-2, A-4	0-2	0-5	45-95	40-90	20-70	10-70	15-30	1-10
Ph:												
Philo-----------	0-10	Silt loam	CL-ML, ML	A-4	0	0-5	95-100	80-100	75-90	60-80	20-35	1-10
	10-53	Silt loam, loam, sandy loam	SM, ML, CL-ML	A-4	0	0-5	95-100	75-100	70-90	45-80	20-35	1-10
	53-65	Silt loam, stratified sand to very gravelly sandy loam	ML, CL-ML, GM, SM	A-1, A-2, A-4	0-2	0-5	45-100	40-100	20-95	10-90	15-30	1-10

Table 17.--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	
Ps:												
Pope------------	0-10	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	85-100	75-100	51-85	25-55	15-20	NP-5
	10-42	Fine sandy loam, sandy loam, loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	95-100	80-100	51-95	25-75	15-30	NP-7
	42-65	Sandy loam, loamy sand	SC-SM, ML, SM, GM	A-1, A-2, A-4	0	0-20	45-100	35-100	30-95	15-70	15-30	NP-7
Px:												
Pope------------	0-10	Silt loam	CL-ML, SM, ML, CL	A-4	0	0	85-100	75-100	70-100	45-90	15-30	NP-10
	10-51	Silt loam, fine sandy loam, loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	95-100	80-100	51-95	25-75	15-30	NP-7
	51-65	Loam, sandy loam, loamy sand	SM, SC-SM, ML, GM	A-1, A-2, A-4	0	0-20	45-100	35-100	30-95	15-70	15-30	NP-7
Pz:												
Pope------------	0-10	Fine sandy loam	SM, SC-SM, ML, CL-ML	A-2, A-4	0	0	85-100	75-100	51-85	25-55	15-20	NP-5
	10-26	Fine sandy loam, gravelly sandy loam, loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0-15	60-100	55-100	30-95	10-75	15-30	NP-7
	26-65	Gravelly loamy sand, stratified sand to very gravelly sandy loam	CL-ML, GM, ML, SM	A-1, A-2, A-4	0-2	0-5	45-95	40-90	20-70	10-70	15-30	1-10
Philo-----------	0-10	Sandy loam	ML, CL-ML	A-4	0	0-5	95-100	80-100	75-90	60-80	20-35	1-10
	10-21	Fine sandy loam, gravelly loam, silt loam	SM, ML, CL-ML	A-4	0	0-5	95-100	75-100	70-90	45-80	20-35	1-10
	21-65	Very gravelly fine sandy loam, stratified sand to very gravelly sandy loam	SM, ML, GM, CL-ML	A-1, A-2, A-4	0-2	0-5	45-95	40-90	20-70	10-70	15-30	1-10

Table 17.--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	
Qm:												
Quarry, limestone------	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---
Qo:												
Quarry, sandstone------	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---
Qs:												
Quarry, shale---	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---
ReG:												
Rock outcrop----	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---
Opequon---------	0-2	Channery silty clay loam	CH, CL	A-6, A-7	0	0-5	70-100	60-80	50-75	50-75	30-55	10-30
	2-13	Channery silty clay, clay	CH, CL	A-6, A-7	0-5	0-10	60-100	50-100	40-100	35-95	35-65	15-40
	13-16	Very channery silty clay, clay	CH, CL	A-6, A-7	0-10	5-25	50-100	40-100	30-100	25-95	35-65	15-40
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
RgG:												
Rock outcrop----	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---
Rough-----------	0-2	Very channery silt loam	SM, GM	A-1, A-2, A-4	0-10	0-20	35-70	35-70	15-45	10-40	20-35	NP-10
	2-6	Extremely channery silt loam, extremely channery loam, very channery silt loam	GM, SM	A-1, A-2	0-10	5-20	35-70	20-50	10-40	10-40	20-35	NP-10
	6-10	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
RuD:												
Rushtown--------	0-.5	Slightly decomposed plant material	PT	A-8	0	0	---	---	---	---	---	---
	.5-6	Channery silt loam	GM, ML, SM	A-1, A-2, A-4	0	0	40-75	35-70	30-70	20-65	25-40	1-10
	6-22	Channery silt loam, very channery silt loam	GM	A-1, A-2, A-4	0	0	30-60	25-55	25-55	20-50	25-40	1-10
	22-65	Extremely channery silt loam	GM	A-1, A-2	0	0	10-35	5-30	5-30	3-25	25-40	1-10
RuF:												
Rushtown--------	0-.5	Slightly decomposed plant material	PT	A-8	0	0	---	---	---	---	---	---
	.5-6	Channery silt loam	SM, ML, GM	A-1, A-2, A-4	0	0	40-75	35-70	30-70	20-65	25-40	1-10
	6-22	Channery silt loam, very channery silt loam	GM	A-1, A-2, A-4	0	0	30-60	25-55	25-55	20-50	25-40	1-10
	22-65	Extremely channery silt loam	GM	A-1, A-2	0	0	10-35	5-30	5-30	3-25	25-40	1-10
ShC:												
Schaffenaker----	0-.5	Slightly decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	.5-1	Moderately decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	1-4	Loamy sand	SW-SM, SP-SM, SM	A-1, A-2, A-3	0	0-15	60-100	55-100	30-75	5-30	---	NP
	4-18	Gravelly loamy sand, loamy fine sand, sand	SP-SM, SW-SM, SM	A-1, A-2, A-3	0	0-10	80-100	75-100	35-80	4-35	---	NP
	18-24	Gravelly loamy sand, loamy fine sand, gravelly sand	SW-SM, SM, SP-SM	A-3, A-1, A-2	0	0-10	60-100	55-100	30-60	5-25	---	NP
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas-ticity index
	In				Pct	Pct					Pct	
SkF:												
Schaffenaker----	0-.5	Slightly decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	.5-1	Moderately decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	1-4	Loamy sand	SP-SM, SM, SW-SM	A-1, A-2, A-3	0	0-15	60-100	55-100	30-75	5-30	---	NP
	4-18	Gravelly loamy sand, loamy fine sand, sand	SM, SW-SM, SP-SM	A-1, A-2, A-3	0	0-10	80-100	75-100	35-80	4-35	---	NP
	18-24	Gravelly loamy sand, loamy fine sand, gravelly sand	SW-SM, SM, SP-SM	A-1, A-2, A-3	0	0-10	60-100	55-100	30-60	5-25	---	NP
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock	---	---	---	---	---	---	---	---	---	---
SnE:												
Schaffenaker----	0-.5	Slightly decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	.5-1	Moderately decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	1-4	Loamy sand	SW-SM, SP-SM, SM	A-1, A-2, A-3	0	0-15	60-100	55-100	30-75	5-30	---	NP
	4-18	Gravelly loamy sand, loamy fine sand, sand	SP-SM, SM, SW-SM	A-1, A-2, A-3	0	0-10	80-100	75-100	35-80	4-35	---	NP
	18-24	Gravelly loamy sand, loamy fine sand, gravelly sand	SW-SM, SP-SM, SM	A-1, A-2, A-3	0	0-10	60-100	55-100	30-60	5-25	---	NP
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
SnE:												
Vanderlip-------	0-2	Slightly decomposed plant material	PT	A-8	5-25	3-20	---	---	---	---	---	---
	2-6	Loamy sand	SM	A-1, A-2	0	3-20	75-100	75-95	40-65	15-25	---	---
	6-26	Very cobbly loamy sand, gravelly loamy sand, sand	SM, SP	A-1, A-2, A-3	0	0-30	60-100	45-100	25-75	2-30	15-25	NP
	26-50	Sand, very cobbly loamy sand, gravelly loamy sand	SM, SP	A-1, A-2, A-3	0	0-30	60-100	45-100	25-75	2-30	15-25	NP
	50-65	Very bouldery sand, sand, gravelly loamy sand	SM, GP, GW, SP-SM	A-1, A-2, A-3	0-75	0-20	45-100	25-100	15-75	2-30	15-25	NP
SnF:												
Schaffenaker----	0-.5	Slightly decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	.5-1	Moderately decomposed plant material	PT	A-8	5-25	0-15	---	---	---	---	---	---
	1-4	Loamy sand	SW-SM, SP-SM, SM	A-1, A-2, A-3	0	0-15	60-100	55-100	30-75	5-30	---	NP
	4-18	Gravelly loamy sand, loamy fine sand, sand	SM, SW-SM, SP-SM	A-1, A-2, A-3	0	0-10	80-100	75-100	35-80	4-35	---	NP
	18-24	Gravelly loamy sand, loamy fine sand, gravelly sand	SW-SM, SP-SM, SM	A-1, A-2, A-3	0	0-10	60-100	55-100	30-60	5-25	---	NP
	24-28	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas-ticity index
	In				Pct	Pct					Pct	
SnF:												
Vanderlip-------	0-2	Slightly decomposed plant material	PT	A-8	5-25	3-20	---	---	---	---	---	---
	2-6	Loamy sand	SM	A-1, A-2	0	3-20	75-100	75-95	40-65	15-25	---	---
	6-26	Very cobbly loamy sand, gravelly loamy sand, sand	SM, SP	A-1, A-2, A-3	0	0-30	60-100	45-100	25-75	2-30	15-25	NP
	26-50	Sand, very cobbly loamy sand, gravelly loamy sand	SM, SP	A-1, A-2, A-3	0	0-30	60-100	45-100	25-75	2-30	15-25	NP
	50-65	Very bouldery sand, sand, gravelly loamy sand	SP-SM, GW, SM, GP	A-1, A-2, A-3	0-75	0-20	45-100	25-100	15-75	2-30	15-25	NP
SxC:												
Sideling--------	0-1	Slightly decomposed plant material	PT	A-8	5-25	0	---	---	---	---	---	---
	1-3	Moderately decomposed plant material	PT	A-8	5-25	0	---	---	---	---	---	---
	3-5	Gravelly loam	ML, SM, GM, GC	A-4, A-6	0-5	0-15	50-85	45-75	40-70	35-65	20-30	3-11
	5-35	Gravelly loam, gravelly clay loam, very gravelly silty clay loam	CL, GC, GM, ML	A-4, A-6	0-5	0-15	50-95	45-90	40-85	35-80	20-35	3-15
	35-50	Channery clay, very flaggy clay loam, silty clay loam	CL, CH	A-6, A-7	0-1	0-40	50-95	45-90	40-85	35-80	30-55	10-30
	50-62	Very flaggy clay loam, channery clay, silty clay loam	CH, CL	A-6, A-7	20-50	10-40	50-95	45-90	40-85	35-80	30-55	10-30

Table 17.--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	Plas-ticity index
	In				Pct	Pct					Pct	
SxE:												
Sideling--------	0-1	Slightly decomposed plant material	PT	A-8	5-25	0	---	---	---	---	---	---
	1-3	Moderately decomposed plant material	PT	A-8	5-25	0	---	---	---	---	---	---
	3-5	Gravelly loam	GC, GM, ML, SM	A-4, A-6	0-5	0-15	50-85	45-75	40-70	35-65	20-30	3-11
	5-35	Gravelly loam, gravelly clay loam, very gravelly silty clay loam	GC, GM, ML, CL	A-4, A-6	0-5	0-15	50-95	45-90	40-85	35-80	20-35	3-15
	35-50	Channery clay, very flaggy clay loam, silty clay loam	CH, CL	A-6, A-7	0-1	0-40	50-95	45-90	40-85	35-80	30-55	10-30
	50-62	Very flaggy clay loam, channery clay, silty clay loam	CH, CL	A-6, A-7	20-50	10-40	50-95	45-90	40-85	35-80	30-55	10-30

Table 17.--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	
SyE:												
Sideling--------	0-1	Bouldery slightly decomposed plant material	PT	A-8	25-65	15-30	---	---	---	---	---	---
	1-3	Bouldery moderately decomposed plant material	PT	A-8	25-65	15-30	---	---	---	---	---	---
	3-5	Gravelly loam	ML, SM, GM, GC	A-4, A-6	0-5	0-15	50-85	45-75	40-70	35-65	20-30	3-11
	5-35	Gravelly loam, gravelly clay loam, very gravelly silty clay loam	GC, CL, GM, ML	A-4, A-6	0-5	0-15	50-95	45-90	40-85	35-80	20-35	3-15
	35-50	Channery clay, very flaggy clay loam, silty clay loam	CL, CH	A-6, A-7	0-1	0-40	50-95	45-90	40-85	35-80	30-55	10-30
	50-62	Very flaggy clay loam, channery clay, silty clay loam	CH, CL	A-6, A-7	20-50	10-40	50-95	45-90	40-85	35-80	30-55	10-30
Ta:												
Tioga-----------	0-8	Fine sandy loam	SM, ML	A-4	0	0	100	95-100	65-95	40-80	15-15	NP-4
	8-36	Sandy loam, loam, gravelly fine sandy loam	GM, SM, ML	A-1, A-2, A-4	0	0	55-100	50-100	35-90	20-80	15-15	NP-2
	36-45	Very gravelly loamy sand, sandy loam, gravelly loam	SP-SM, SM, GM	A-1, A-2	0	0-10	35-100	30-100	15-90	5-80	15-15	NP-2
	45-60	Extremely gravelly loamy sand, sandy loam, gravelly loam	GP-GM, SM, GM	A-1, A-2	0-10	0-20	20-45	15-35	15-30	5-30	15-15	NP-2

Table 17.--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	
TyA:												
Tygart----------	0-9	Silt loam	ML, CL	A-4, A-6	0	0	95-100	95-100	85-100	60-90	25-40	2-15
	9-17	Silty clay loam, silty clay, clay loam	CL, CH, MH	A-6, A-7	0	0	95-100	95-100	85-100	65-95	30-65	11-30
	17-32	Silty clay, silty clay loam, clay loam	MH, CH, CL	A-6, A-7	0	0	95-100	95-100	85-100	65-95	30-65	11-30
	32-46	Silty clay loam, silty clay, clay loam	CL, MH, CH	A-6, A-7	0	0	95-100	95-100	85-100	65-95	30-65	11-30
	46-60	Silty clay loam, silty clay, clay	MH, CL, CH	A-6, A-7	0	0	90-100	90-100	85-100	70-95	30-65	11-30
Ua:												
Udorthents.												
Uu:												
Urban land.												
Udorthents.												
WaB:												
Weikert---------	0-6	Channery silt loam	SM, ML, GM	A-1, A-2, A-4	0	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	6-11	Very channery silt loam, channery loam	GM, GP-GM	A-1, A-2	0-1	0-20	30-70	25-70	20-60	5-35	28-36	3-9
	11-14	Extremely channery silt loam, extremely channery loam	GM, GP-GM	A-1, A-2	0-5	5-35	15-60	10-50	5-40	5-30	28-36	3-9
	14-18	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
WaC:												
Weikert---------	0-5	Channery silt loam	ML, SM, GM	A-1, A-2, A-4	0	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	5-10	Very channery silt loam, channery loam	GM, GP-GM	A-1, A-2	0-1	0-20	30-70	25-70	20-60	5-35	28-36	3-9
	10-13	Extremely channery silt loam, extremely channery loam	GM, GP-GM	A-1, A-2	0-5	5-35	15-60	10-50	5-40	5-30	28-36	3-9
	13-17	Bedrock	---	---	---	---	---	---	---	---	---	---
WbC:												
Weikert---------	0-6	Channery silt loam	GM, ML, SM	A-1, A-2, A-4	0	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	6-14	Very channery silt loam, channery loam	GM, GP-GM	A-1, A-2	0-1	0-20	30-70	25-70	20-60	5-35	28-36	3-9
	14-18	Extremely channery silt loam, extremely channery loam	GM, GP-GM	A-1, A-2	0-5	5-35	15-60	10-50	5-40	5-30	28-36	3-9
	18-22	Bedrock	---	---	---	---	---	---	---	---	---	---
Berks-----------	0-7	Channery silt loam	SC, ML, GM, GC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	7-12	Very channery silt loam, channery silt loam, channery loam	GC, GM, SC, SM	A-2, A-4, A-1	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	12-21	Very channery silt loam, channery silt loam, channery loam	GC, GM, SC, SM	A-2, A-4, A-1	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	21-25	Extremely channery silt loam, very channery loam, extremely channery loam	GC-GM, GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	25-29	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	Plas- ticity index
	In				Pct	Pct					Pct	
WbD:												
Weikert---------	0-4	Channery silt loam	SM, ML, GM	A-1, A-2, A-4	0	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	4-12	Very channery silt loam, channery loam	GP-GM, GM	A-1, A-2	0-1	0-20	30-70	25-70	20-60	5-35	28-36	3-9
	12-16	Extremely channery silt loam, extremely channery loam	GM, GP-GM	A-1, A-2	0-5	5-35	15-60	10-50	5-40	5-30	28-36	3-9
	16-20	Bedrock	---	---	---	---	---	---	---	---	---	---
Berks-----------	0-5	Channery silt loam	GM, ML, SC, GC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	5-10	Very channery silt loam, channery silt loam, channery loam	SM, SC, GM, GC	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	10-19	Very channery silt loam, channery silt loam, channery loam	SC, GM, SM, GC	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	19-23	Extremely channery silt loam, very channery loam, extremely channery loam	GC-GM, GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	23-27	Bedrock	---	---	---	---	---	---	---	---	---	---
WkF:												
Weikert---------	0-1	Slightly decomposed plant material	PT	A-8	0	10-25	---	---	---	---	---	---
	1-3	Very channery silt loam	GM, ML, SM	A-1, A-2, A-4	0	10-25	35-70	25-70	25-65	20-55	30-40	4-10
	3-14	Very channery silt loam, channery loam	GM, GP-GM	A-1, A-2	0-1	0-20	15-60	10-55	5-45	5-35	28-36	3-9
	14-18	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
WkF:												
Berks-----------	0-1	Slightly decomposed plant material	PT	A-8	0	0-30	---	---	---	---	---	---
	1-3	Very channery silt loam	GC, GM, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	3-13	Very channery loam, channery loam, very channery silt loam	SC, GC, GM, SM	A-1, A-2, A-4	0	0-40	35-65	25-55	20-40	15-40	25-36	5-10
	13-25	Very channery loam, channery loam, very channery silt loam	SC, SM, GM, GC	A-1, A-2, A-4	0	0-40	35-65	25-55	20-40	15-40	25-36	5-10
	25-29	Bedrock	---	---	---	---	---	---	---	---	---	---

Table 18.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
AgB:														
Allegheny-----------	0-8	23-52	28-50	15-27	1.20-1.40	0.6-2	0.12-0.22	0.0-2.9	1.0-4.0	.32	.32	4	5	56
	8-42	15-45	35-60	18-35	1.20-1.50	0.6-2	0.13-0.18	0.0-2.9	0.1-0.5	.28	.28			
	42-65	35-60	20-40	10-35	1.20-1.40	0.6-2	0.08-0.17	0.0-2.9	0.0-0.5	.28	.28			
AgC:														
Allegheny-----------	0-7	23-52	28-50	15-27	1.20-1.40	0.6-2	0.12-0.22	0.0-2.9	1.0-4.0	.32	.32	4	5	56
	7-41	15-45	35-60	18-35	1.20-1.50	0.6-2	0.13-0.18	0.0-2.9	0.1-0.5	.28	.28			
	41-65	35-60	20-40	10-35	1.20-1.40	0.6-2	0.08-0.17	0.0-2.9	0.0-0.5	.28	.28			
AnB:														
Andover-------------	0-8	23-52	28-50	10-27	1.20-1.40	0.6-2	0.08-0.18	0.0-2.9	1.0-4.0	.24	.28	3	6	---
	8-19	35-60	18-40	18-35	1.20-1.40	0.6-2	0.08-0.12	0.0-2.9	0.0-0.5	.17	.20			
	19-46	35-65	18-40	18-35	1.30-1.60	0.06-0.2	0.06-0.10	0.0-2.9	0.0-0.5	.17	.20			
	46-65	45-65	15-35	18-40	1.40-1.70	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.17	.20			
Ba:														
Basher--------------	0-8	43-80	15-35	6-18	1.15-1.40	0.6-2	0.15-0.21	0.0-2.9	1.0-5.0	.32	.32	5	5	---
	8-22	40-60	30-55	6-18	1.15-1.45	0.6-2	0.10-0.19	0.0-2.9	0.0-3.0	.32	.32			
	22-46	40-75	15-45	6-18	1.25-1.55	0.2-2	0.10-0.19	0.0-2.9	0.0-0.8	.32	.32			
	46-65	50-80	10-30	1-8	1.25-1.55	0.6-6	0.02-0.07	0.0-2.9	0.0-0.5	.17	.20			
BbC:														
Berks---------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	3	---	---
	1-4	30-50	35-50	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	4.0-12	.17	.32			
	4-21	30-50	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	21-24	30-50	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	24-28	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
BbE:														
Berks---------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	3	---	---
	1-4	30-50	35-50	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	4.0-12	.17	.32			
	4-21	30-60	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	21-24	30-60	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	24-28	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
BcD:														
Berks---------------	0-5	30-50	35-50	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	5-19	30-50	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	19-23	30-50	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	23-27	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
BcD:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
BcE:														
Berks---------------	0-5	30-50	35-50	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	5-19	30-50	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	19-23	30-50	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	23-27	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
BcF:														
Berks---------------	0-5	30-50	35-50	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	5-19	30-50	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	19-23	30-50	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	23-27	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
BeB:														
Berks---------------	0-7	25-45	50-60	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	7-21	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	21-25	25-45	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	25-29	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Clearbrook----------	0-8	15-30	50-65	15-27	1.25-1.55	0.6-2	0.08-0.12	0.0-2.9	0.1-2.0	.32	.37	3	5	56
	8-19	10-25	45-65	20-35	1.35-1.55	0.2-0.6	0.08-0.12	3.0-5.9	0.0-0.5	.28	.37			
	19-22	5-20	45-65	25-50	1.35-1.55	0.2-0.6	0.06-0.10	3.0-5.9	0.0-0.5	.28	.37			
	22-26	---	---	---	---	0.06-0.2	---	---	0.0-0.0	---	---			
BeC:														
Berks---------------	0-7	25-45	50-60	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	7-21	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	21-25	25-45	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	25-29	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
BeC:														
Clearbrook----------	0-8	15-30	50-65	15-27	1.25-1.55	0.6-2	0.08-0.12	0.0-2.9	0.1-2.0	.32	.37	3	5	56
	8-19	10-25	45-65	20-35	1.35-1.55	0.2-0.6	0.08-0.12	3.0-5.9	0.0-0.5	.28	.37			
	19-22	5-20	45-65	25-50	1.35-1.55	0.2-0.6	0.06-0.10	3.0-5.9	0.0-0.5	.28	.37			
	22-26	---	---	---	---	0.06-0.2	---	---	0.0-0.0	---	---			
BkB:														
Berks---------------	0-7	25-45	50-60	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	7-21	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	21-25	25-45	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	25-29	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Weikert-------------	0-6	25-40	50-60	10-25	1.20-1.40	2-6	0.08-0.14	0.0-2.9	1.0-4.0	.28	---	2	---	---
	6-14	25-45	40-60	10-25	1.20-1.40	2-6	0.06-0.11	0.0-2.9	0.0-0.5	.28	---			
	14-18	25-45	40-60	10-25	1.20-1.40	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.28	---			
	18-22	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
BqF:														
Blackthorn----------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	4	---	---
	1-2	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---			
	2-7	55-70	20-35	2-10	1.20-1.40	0.6-6	0.10-0.15	0.0-2.9	4.0-14	.20	.24			
	7-47	45-70	15-35	7-18	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	0.2-1.0	.20	.28			
	47-65	5-15	35-55	27-60	1.30-1.60	0.2-2	0.14-0.18	3.0-5.9	0.1-0.5	.28	.28			
BrB:														
Brinkerton----------	0-7	5-15	55-75	15-30	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	1.0-4.0	.32	.32	3	---	---
	7-21	5-15	55-75	15-35	1.20-1.50	0.6-2	0.14-0.18	3.0-5.9	0.0-0.5	.37	.37			
	21-45	5-15	55-70	15-35	1.40-1.70	0.06-0.2	0.08-0.12	3.0-5.9	0.0-0.5	.32	.37			
	45-60	10-40	45-60	15-25	1.20-1.60	0.06-0.6	0.14-0.18	0.0-2.9	0.0-0.5	.20	.28			
BuB:														
Buchanan------------	0-8	30-52	28-45	10-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-3.0	.24	.32	4	6	48
	8-33	35-55	20-45	18-30	1.30-1.60	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.28			
	33-65	35-55	20-45	18-35	1.40-1.70	0.06-0.2	0.06-0.10	0.0-2.9	0.0-0.5	.17	.24			
BuC:														
Buchanan------------	0-8	30-52	28-45	10-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-3.0	.24	.32	4	6	48
	8-33	35-55	20-45	18-30	1.30-1.60	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.28			
	33-65	35-55	20-45	18-35	1.40-1.70	0.06-0.2	0.06-0.10	0.0-2.9	0.0-0.5	.17	.24			
BxC:														
Buchanan------------	0-3	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	4	8	0
	3-4	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	4-5	30-52	28-45	10-27	1.20-1.40	0.6-2	0.11-0.16	0.0-2.9	4.0-14	.24	.32			
	5-33	35-55	20-45	18-30	1.30-1.60	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.28			
	33-65	35-55	20-45	18-35	1.40-1.70	0.06-0.2	0.06-0.10	0.0-2.9	0.0-0.5	.17	.24			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
BxE:														
Buchanan------------	0-2	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	4	8	0
	2-4	30-52	28-45	10-27	1.20-1.40	0.6-2	0.11-0.16	0.0-2.9	4.0-14	.24	.32			
	4-30	35-55	20-45	18-30	1.30-1.60	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.28			
	30-65	35-55	20-45	18-35	1.40-1.70	0.06-0.2	0.06-0.10	0.0-2.9	0.0-0.5	.17	.24			
CbB:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Berks---------------	0-5	30-50	35-50	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	5-19	30-50	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	19-23	30-50	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	23-27	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
CbC:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Berks---------------	0-5	30-50	35-50	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	5-19	30-50	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	19-23	30-50	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	23-27	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
CkB:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Klinesville---------	0-2	23-45	35-50	10-25	1.20-1.40	2-6	0.08-0.12	0.0-2.9	2.0-4.0	.20	.28	2	---	48
	2-14	20-45	35-60	10-20	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.20	.28			
	14-18	20-45	35-60	10-20	1.40-1.60	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.20	.28			
	18-22	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
CkC:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
CkC:														
Klinesville---------	0-2	23-45	35-50	10-25	1.20-1.40	2-6	0.08-0.12	0.0-2.9	2.0-4.0	.20	.28	2	---	48
	2-14	20-45	35-60	10-20	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.20	.28			
	14-18	20-45	35-60	10-20	1.40-1.60	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.20	.28			
	18-22	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
CkD:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Klinesville---------	0-2	23-45	35-50	10-25	1.20-1.40	2-6	0.08-0.12	0.0-2.9	2.0-4.0	.20	.28	2	---	48
	2-14	20-45	35-60	10-20	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.20	.28			
	14-18	20-45	35-60	10-20	1.40-1.60	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.20	.28			
	18-22	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
CkE:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.2-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Klinesville---------	0-2	23-45	35-50	10-25	1.20-1.40	2-6	0.08-0.12	0.0-2.9	2.0-4.0	.20	.28	2	---	48
	2-14	20-45	35-60	10-20	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.20	.28			
	14-18	20-45	35-60	10-20	1.40-1.60	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.20	.28			
	18-22	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
CkF:														
Calvin--------------	0-3	35-50	35-50	10-25	1.20-1.40	2-6	0.12-0.18	0.0-2.9	2.0-4.0	.24	.24	3	---	56
	3-18	30-45	35-60	10-25	1.40-1.60	2-6	0.08-0.16	0.0-2.9	0.1-0.5	.20	.24			
	18-26	30-45	35-60	10-25	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
	26-30	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Klinesville---------	0-2	23-45	35-50	10-25	1.20-1.40	2-6	0.08-0.12	0.0-2.9	2.0-4.0	.20	.28	2	---	48
	2-14	20-45	35-60	10-20	1.40-1.60	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.20	.28			
	14-18	20-45	35-60	10-20	1.40-1.60	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.20	.28			
	18-22	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
ClC:														
Caneyville----------	0-4	10-24	50-70	18-27	1.20-1.40	0.6-2	0.17-0.22	0.0-2.9	2.0-4.0	.43	.43	3	7	38
	4-12	10-24	45-70	18-35	1.25-1.50	0.6-2	0.13-0.18	0.0-4.5	0.0-0.2	.43	.43			
	12-24	5-15	35-55	36-60	1.35-1.60	0.2-0.6	0.12-0.18	3.0-5.9	0.0-0.2	.28	.28			
	24-28	---	---	---	---	0.06-2	---	---	0.0-0.0	---	---			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
ClD:														
Caneyville----------	0-4	10-24	50-70	18-27	1.20-1.40	0.6-2	0.17-0.22	0.0-2.9	2.0-4.0	.43	.43	3	7	38
	4-12	10-24	45-70	18-35	1.25-1.50	0.6-2	0.13-0.18	0.0-4.5	0.0-0.2	.43	.43			
	12-24	5-15	35-55	36-60	1.35-1.60	0.2-0.6	0.12-0.18	3.0-5.9	0.0-0.2	.28	.28			
	24-28	---	---	---	---	0.06-2	---	---	0.0-0.0	---	---			
ClE:														
Caneyville----------	0-4	10-24	50-70	18-27	1.20-1.40	0.6-2	0.17-0.22	0.0-2.9	2.0-4.0	.43	.43	3	7	38
	4-12	10-24	45-70	18-35	1.25-1.50	0.6-2	0.13-0.18	0.0-4.5	0.0-0.2	.43	.43			
	12-24	5-15	35-55	36-60	1.35-1.60	0.2-0.6	0.12-0.18	3.0-5.9	0.0-0.2	.28	.28			
	24-28	---	---	---	---	0.06-2	---	---	0.0-0.0	---	---			
CnF:														
Caneyville----------	0-4	10-20	45-60	27-32	1.20-1.40	0.6-2	0.17-0.22	0.0-2.9	1.0-2.0	.43	.43	3	7	38
	4-24	5-15	35-55	36-60	1.35-1.60	0.2-0.6	0.12-0.18	3.0-5.9	0.0-0.2	.28	.28			
	24-28	---	---	---	---	0.06-2	---	---	0.0-0.0	---	---			
CrB:														
Clarksburg----------	0-12	15-30	50-65	10-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-3.0	.28	.37	3	---	---
	12-29	15-30	40-55	22-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	0.1-0.5	.28	.28			
	29-60	15-35	35-55	22-35	1.40-1.70	0.06-0.6	0.06-0.12	3.0-5.9	0.1-0.5	.28	.32			
CrC:														
Clarksburg----------	0-12	15-30	50-65	10-27	1.20-1.40	0.6-2	0.12-0.18	0.0-2.9	1.0-3.0	.28	.37	3	---	---
	12-29	15-30	40-55	22-35	1.30-1.50	0.6-2	0.12-0.18	3.0-5.9	0.1-0.5	.28	.28			
	29-60	20-35	35-50	22-35	1.40-1.70	0.06-0.6	0.06-0.12	3.0-5.9	0.1-0.5	.28	.32			
CvB:														
Clearbrook----------	0-8	15-30	50-65	15-27	1.25-1.55	0.6-2	0.14-0.18	0.0-2.9	0.1-2.0	.37	.37	3	5	56
	8-19	10-25	45-65	20-40	1.35-1.55	0.2-0.6	0.08-0.12	3.0-5.9	0.0-0.5	.28	.37			
	19-22	5-20	45-65	25-50	1.35-1.55	0.2-0.6	0.06-0.10	3.0-5.9	0.0-0.5	.28	.37			
	22-26	---	---	---	---	0.06-0.2	---	---	0.0-0.0	---	---			
Cavode--------------	0-12	15-25	50-70	15-35	1.20-1.40	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.37	.37	4	---	56
	12-51	10-25	35-55	35-45	1.20-1.50	0.06-0.2	0.10-0.14	3.0-5.9	0.1-0.5	.24	.24			
	51-62	10-25	35-55	25-45	1.20-1.50	0.06-0.2	0.08-0.12	3.0-5.9	0.1-0.5	.24	.28			
	62-66	---	---	---	---	0.06-2	---	---	0.0-0.0	---	---			
Cz:														
Combs---------------	0-20	45-70	20-52	5-18	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	1.0-5.0	.24	.24	5	3	86
	20-53	45-70	20-52	5-18	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	0.5-2.0	.28	.32			
	53-65	50-80	15-40	5-18	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	0.5-2.0	.28	.28			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
DkC:														
Dekalb--------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	2	8	0
	1-4	47-70	15-30	10-20	1.20-1.50	6-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	4-15	47-80	10-30	7-18	1.20-1.50	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.17	.24			
	15-24	47-80	10-30	5-15	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
	24-28	---	---	---	---	2-6	0.00-0.00	---	0.0-0.0	---	---			
DrE:														
Dekalb--------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	2	8	0
	1-3	47-70	15-30	10-20	1.20-1.50	6-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	3-24	47-80	10-30	7-18	1.20-1.50	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.17	.24			
	24-34	47-80	10-27	5-15	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
	34-38	---	---	---	---	2-6	0.00-0.00	---	0.0-0.0	---	---			
Rock outcrop--------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
DsB:														
Downsville----------	0-10	35-55	30-50	12-18	1.20-1.40	2-6	0.14-0.17	0.0-2.9	1.0-4.0	.28	.32	5	8	0
	10-18	30-60	25-45	12-18	1.40-1.55	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.28	.32			
	18-30	30-60	20-45	20-40	1.40-1.55	0.6-2	0.06-0.17	0.0-2.9	0.0-0.5	.20	.28			
	30-99	30-60	20-35	18-35	1.40-1.55	0.2-0.6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
DsC:														
Downsville----------	0-7	35-55	30-50	12-18	1.20-1.40	2-6	0.14-0.17	0.0-2.9	1.0-4.0	.28	.32	5	8	0
	7-15	30-60	25-45	12-18	1.40-1.55	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.28	.32			
	15-27	30-60	20-45	20-40	1.40-1.55	0.6-2	0.06-0.17	0.0-2.9	0.0-0.5	.20	.28			
	27-99	30-60	20-35	18-35	1.40-1.55	0.2-0.6	0.06-0.10	0.0-2.9	0.0-0.5	.20	.28			
Dz:														
Dunning-------------	0-12	10-20	40-60	27-40	1.20-1.40	0.6-2	0.19-0.23	3.0-5.9	2.0-10	.32	.32	5	---	---
	12-46	5-20	30-60	35-60	1.40-1.65	0.0015-0.1	0.14-0.18	3.0-5.9	0.2-0.5	.28	.28			
	46-65	10-60	25-75	15-60	1.40-1.65	0.0015-1	0.10-0.18	1.5-5.9	0.2-0.5	---	---			
ErB:														
Ernest--------------	0-7	10-30	45-65	15-20	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	2.0-4.0	.43	.43	4	5	56
	7-27	10-25	45-65	20-35	1.30-1.50	0.6-2	0.12-0.16	3.0-5.9	0.0-0.5	.32	.32			
	27-43	15-30	40-60	22-35	1.40-1.70	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.32	.37			
	43-65	15-30	40-60	15-30	1.30-1.60	0.06-0.6	0.08-0.12	3.0-5.9	0.0-0.5	.32	.37			
ErC:														
Ernest--------------	0-6	10-30	45-65	15-20	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	2.0-4.0	.43	.43	4	5	56
	6-26	10-25	45-65	20-35	1.30-1.50	0.6-2	0.12-0.16	3.0-5.9	0.0-0.5	.32	.32			
	26-42	15-30	40-60	22-35	1.40-1.70	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.32	.37			
	42-65	15-30	40-60	15-30	1.30-1.60	0.06-0.6	0.08-0.12	3.0-5.9	0.0-0.5	.32	.37			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
HaE:														
Hazleton------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	8	0
	1-2	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	2-5	45-55	20-42	7-18	1.20-1.40	2-6	0.10-0.16	0.0-2.9	4.0-12	.15	.17			
	5-49	45-70	10-42	7-18	1.20-1.40	2-20	0.08-0.12	0.0-2.9	0.0-0.5	.15	.20			
	49-65	50-85	5-35	5-15	1.20-1.40	2-20	0.06-0.12	0.0-2.9	0.0-0.5	.15	.20			
Dekalb--------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	2	8	0
	1-4	47-70	15-30	10-20	1.20-1.50	6-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	4-15	47-80	10-30	7-18	1.20-1.50	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.17	.24			
	15-24	47-80	10-27	5-15	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
	24-28	---	---	---	---	2-6	0.00-0.00	---	0.0-0.0	---	---			
HaF:														
Hazleton------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	8	0
	1-2	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	2-5	45-55	20-42	7-18	1.20-1.40	2-6	0.10-0.16	0.0-2.9	4.0-12	.15	.17			
	5-49	45-70	10-42	7-18	1.20-1.40	2-20	0.08-0.12	0.0-2.9	0.0-0.5	.15	.20			
	49-65	50-85	5-35	5-15	1.20-1.40	2-20	0.06-0.12	0.0-2.9	0.0-0.5	.15	.20			
Dekalb--------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	2	8	0
	1-4	47-70	15-30	10-20	1.20-1.50	6-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	4-15	47-80	10-30	7-18	1.20-1.50	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.17	.24			
	15-24	47-80	10-27	5-15	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
	24-28	---	---	---	---	2-6	0.00-0.00	---	0.0-0.0	---	---			
HdF:														
Hazleton------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	8	0
	1-2	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	2-5	45-70	15-35	7-18	1.20-1.40	2-6	0.10-0.16	0.0-2.9	4.0-12	.15	.17			
	5-49	45-70	15-35	7-18	1.20-1.40	2-20	0.08-0.12	0.0-2.9	0.0-0.5	.15	.20			
	49-65	50-85	5-30	5-15	1.20-1.40	2-20	0.06-0.12	0.0-2.9	0.0-0.5	.15	.20			
Dekalb--------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	2	8	0
	1-4	47-70	15-30	10-20	1.20-1.50	6-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	4-15	47-80	10-30	7-18	1.20-1.50	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.17	.24			
	15-24	47-80	10-27	5-15	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
	24-28	---	---	---	---	2-6	0.00-0.00	---	0.0-0.0	---	---			
Rock outcrop--------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
HeF:														
Hazleton------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	8	0
	1-2	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	2-5	45-70	15-35	7-18	1.20-1.40	2-6	0.10-0.16	0.0-2.9	4.0-12	.15	.17			
	5-49	45-70	15-35	7-18	1.20-1.40	2-20	0.08-0.12	0.0-2.9	0.0-0.5	.15	.20			
	49-65	50-85	5-30	5-15	1.20-1.40	2-20	0.06-0.12	0.0-2.9	0.0-0.5	.15	.20			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
HeF:														
Dekalb--------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	2	8	0
	1-4	47-70	---	10-20	1.20-1.50	6-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	4-15	47-80	---	7-18	1.20-1.50	6-20	0.06-0.12	0.0-2.9	0.0-0.5	.17	.24			
	15-24	47-80	---	5-15	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.24			
	24-28	---	---	---	---	2-6	0.00-0.00	---	0.0-0.0	---	---			
Rock outcrop--------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
HlF:														
Hazleton-----------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	8	0
	1-2	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	2-5	45-55	20-42	7-18	1.20-1.40	2-6	0.10-0.16	0.0-2.9	4.0-12	.15	.17			
	5-49	45-70	10-42	7-18	1.20-1.40	2-20	0.08-0.12	0.0-2.9	0.2-0.5	.15	.20			
	49-65	50-85	5-35	5-15	1.20-1.40	2-20	0.06-0.12	0.0-2.9	0.1-0.3	.15	.20			
Lehew---------------	0-.5	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	---	---
	.5-6	55-70	15-35	4-16	1.20-1.40	2-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	6-29	45-70	15-35	5-18	1.20-1.40	2-20	0.06-0.10	0.0-2.9	0.2-0.5	.17	.24			
	29-35	45-70	15-35	5-18	1.20-1.40	2-20	0.06-0.10	0.0-2.9	0.1-0.3	.17	.24			
	35-39	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Dekalb--------------	0-1	0-0	0-0	0-0	0.15-0.40	6-20	0.45-0.55	---	30-80	---	---	2	8	0
	1-4	47-70	15-30	10-20	1.20-1.50	6-20	0.08-0.12	0.0-2.9	4.0-12	.17	.24			
	4-15	47-80	10-30	7-18	1.20-1.50	6-20	0.06-0.12	0.0-2.9	0.2-0.5	.17	.24			
	15-24	47-80	10-27	5-15	1.20-1.50	6-20	0.05-0.10	0.0-2.9	0.1-0.3	.17	.24			
	24-28	---	---	---	---	2-6	0.00-0.00	---	0.0-0.0	---	---			
Ho:														
Holly---------------	0-3	20-50	45-60	15-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	2.0-5.0	.28	.28	5	6	48
	3-24	20-60	35-60	18-30	1.20-1.50	0.2-2	0.17-0.21	0.0-2.9	0.0-0.5	.28	.32			
	24-39	35-60	35-60	10-27	1.20-1.45	0.6-6	0.10-0.20	0.0-2.9	0.0-0.5	.28	.32			
	39-65	35-90	5-60	6-27	1.20-1.40	0.6-6	0.07-0.18	0.0-2.9	0.0-0.5	.28	.37			
HwB:														
Hustontown----------	0-8	15-30	45-65	15-27	1.20-1.40	0.6-2	0.16-0.20	0.0-2.9	1.0-4.0	.32	.37	4	4	56
	8-12	15-40	40-65	15-27	1.30-1.50	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.28	.32			
	12-20	15-40	40-65	18-35	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.28	.32			
	20-30	15-40	40-65	18-35	1.30-1.50	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.28	.32			
	30-65	15-40	40-65	18-35	1.40-1.70	0.2-0.6	0.04-0.08	0.0-2.9	0.0-0.5	.28	.32			
Ln:														
Lindside-----------	0-7	5-20	45-75	15-27	1.20-1.40	0.6-2	0.20-0.26	0.0-2.9	2.0-6.0	.32	.32	5	---	---
	7-48	5-20	45-75	18-35	1.20-1.40	0.2-2	0.17-0.22	0.0-2.9	0.2-1.5	.37	.37			
	48-60	5-60	30-75	18-35	1.20-1.40	0.2-6	0.12-0.18	0.0-2.9	0.1-0.3	.32	.32			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
LzC:														
Litz----------------	0-.5	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---	3	8	0
	.5-4	15-40	45-65	10-27	1.20-1.50	0.6-2	0.13-0.16	0.0-2.9	2.0-8.0	.32	.37			
	4-27	10-40	45-65	10-35	1.20-1.50	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.32	.43			
	27-31	10-40	45-65	20-35	1.20-1.50	0.6-2	0.04-0.10	0.0-2.9	0.2-0.8	.32	.43			
	31-35	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
LzD:														
Litz----------------	0-.5	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---	3	8	0
	.5-4	15-40	45-65	10-27	1.20-1.50	0.6-2	0.13-0.16	0.0-2.9	2.0-8.0	.32	.37			
	4-27	10-40	45-65	10-35	1.20-1.50	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.32	.43			
	27-31	10-40	45-65	20-35	1.20-1.50	0.6-2	0.04-0.10	0.0-2.9	0.2-0.8	.32	.43			
	31-35	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
LzE:														
Litz----------------	0-.5	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---	3	8	0
	.5-4	15-40	45-65	10-27	1.20-1.50	0.6-2	0.13-0.16	0.0-2.9	2.0-8.0	.32	.37			
	4-27	10-40	45-65	10-35	1.20-1.50	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.32	.43			
	27-31	10-40	45-65	20-35	1.20-1.50	0.6-2	0.04-0.10	0.0-2.9	0.2-0.8	.32	.43			
	31-35	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
LzF:														
Litz----------------	0-.5	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---	3	8	0
	.5-4	15-40	45-65	10-27	1.20-1.50	0.6-2	0.13-0.16	0.0-2.9	2.0-8.0	.32	.37			
	4-27	10-40	45-65	10-35	1.20-1.50	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.32	.43			
	27-31	10-40	45-65	20-35	1.20-1.50	0.6-2	0.04-0.10	0.0-2.9	0.2-0.8	.32	.43			
	31-35	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Me:														
Melvin--------------	0-10	5-20	45-75	12-17	1.20-1.60	0.6-2	0.18-0.23	0.0-2.9	2.0-8.0	.43	.43	5	5	---
	10-36	5-20	45-75	20-35	1.30-1.60	0.6-2	0.18-0.23	0.0-2.9	0.2-0.8	.43	.43			
	36-68	5-70	15-75	7-35	1.40-1.70	0.6-2	0.16-0.23	0.0-2.9	0.2-0.8	.43	.43			
	68-72	5-90	5-85	2-10	---	---	---	---	0.2-0.8	---	---			
MhA:														
Monongahela---------	0-10	15-30	45-65	10-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	2.0-4.0	.43	.43	3	5	56
	10-27	15-35	35-60	18-35	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-0.5	.43	.43			
	27-53	15-55	20-55	18-35	1.30-1.60	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.43	.49			
	53-65	30-70	15-55	15-35	1.20-1.40	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37	.43			
MhB:														
Monongahela---------	0-8	15-30	45-65	10-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	2.0-4.0	.43	.43	3	5	56
	8-30	15-35	35-60	18-35	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-0.5	.43	.43			
	30-51	20-55	20-55	18-35	1.30-1.60	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.43	.49			
	51-65	30-55	20-55	10-35	1.20-1.40	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37	.43			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
MhC:														
Monongahela---------	0-8	15-30	45-65	10-27	1.20-1.40	0.6-2	0.18-0.24	0.0-2.9	2.0-4.0	.43	.43	3	5	56
	8-28	15-35	35-60	18-35	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-0.5	.43	.43			
	28-49	20-55	20-55	18-35	1.30-1.60	0.06-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.43	.49			
	49-65	30-55	20-55	10-35	1.20-1.40	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.37	.43			
MrC:														
Murrill-------------	0-9	30-45	30-50	10-20	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	2.0-10	.28	.32	4	---	---
	9-55	30-55	20-45	18-35	1.40-1.70	0.6-2	0.10-0.14	0.0-2.9	0.2-1.0	.24	.28			
	55-72	5-25	35-60	27-55	1.40-1.70	0.2-2	0.08-0.12	3.0-5.9	0.1-0.5	.28	.32			
MrD:														
Murrill-------------	0-9	30-45	30-50	10-20	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	2.0-10	.28	.32	4	---	---
	9-55	30-55	20-45	18-35	1.40-1.70	0.6-2	0.10-0.14	0.0-2.9	0.2-1.0	.24	.28			
	55-72	5-25	35-60	27-55	1.40-1.70	0.2-2	0.08-0.12	3.0-5.9	0.1-0.5	.28	.32			
MsC:														
Murrill-------------	0-9	30-45	30-50	10-20	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	4.0-14	.28	.32	4	---	---
	9-43	30-55	20-45	18-35	1.40-1.70	0.6-2	0.10-0.14	0.0-2.9	0.2-1.0	.24	.28			
	43-60	5-25	35-60	27-55	1.40-1.70	0.2-2	0.08-0.12	3.0-5.9	0.1-0.5	.28	.32			
MsE:														
Murrill-------------	0-9	30-45	30-50	10-20	1.20-1.50	0.6-2	0.12-0.16	0.0-2.9	4.0-14	.28	.32	4	---	---
	9-43	30-55	20-45	18-35	1.40-1.70	0.6-2	0.10-0.14	0.0-2.9	0.2-1.0	.24	.28			
	43-60	5-25	35-60	27-55	1.40-1.70	0.2-2	0.08-0.12	3.0-5.9	0.1-0.5	.28	.32			
Pg:														
Philo---------------	0-9	30-52	28-50	10-18	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	2.0-6.0	.37	.28	5	---	---
	9-48	30-60	25-60	10-18	1.20-1.40	0.6-2	0.10-0.20	0.0-2.9	0.2-1.5	.32	.32			
	48-65	30-90	5-50	5-18	1.20-1.40	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.10	---			
Ph:														
Philo---------------	0-10	20-50	50-60	10-18	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	2.0-6.0	.37	---	4	5	56
	10-53	30-60	25-60	10-18	1.20-1.40	0.6-2	0.10-0.20	0.0-2.9	0.2-1.5	.32	---			
	53-65	30-90	5-60	5-18	1.20-1.40	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.10	---			
Ps:														
Pope----------------	0-10	55-70	10-35	5-15	1.20-1.40	2-6	0.10-0.16	0.0-2.9	3.0-7.0	.28	.28	5	---	---
	10-42	45-70	10-35	5-18	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	0.3-2.0	.28	.28			
	42-65	55-85	10-30	5-20	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	0.3-1.6	.28	.20			
Px:														
Pope----------------	0-10	30-40	45-55	5-15	1.20-1.40	0.6-2	0.14-0.23	0.0-2.9	3.0-7.0	.37	.37	5	---	---
	10-51	30-60	30-55	5-18	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	0.3-2.0	.28	.28			
	51-65	35-85	15-45	5-20	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	0.3-1.6	.28	.20			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
Pz:														
Pope----------------	0-10	50-75	15-30	5-15	1.20-1.40	2-6	0.10-0.16	0.0-2.9	3.0-7.0	.28	.28	5	---	---
	10-26	50-75	15-30	5-18	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	0.3-2.0	.28	.28			
	26-65	65-90	5-20	0-15	1.20-1.40	2-6	0.06-0.10	0.0-2.9	0.3-1.6	.10	---			
Philo---------------	0-10	55-75	10-30	10-18	1.20-1.40	0.6-2	0.14-0.20	0.0-2.9	2.0-6.0	.37	---	4	5	56
	10-21	40-75	10-55	10-18	1.20-1.40	0.6-2	0.10-0.20	0.0-2.9	0.2-1.5	.32	---			
	21-65	55-90	5-40	5-18	1.20-1.40	2-6	0.06-0.10	0.0-2.9	0.1-0.5	.10	---			
Qm:														
Quarry, limestone---	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
Qo:														
Quarry, sandstone---	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
Qs:														
Quarry, shale-------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
ReG:														
Rock outcrop--------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
Opequon-------------	0-2	5-20	45-65	27-45	1.20-1.50	0.2-2	0.16-0.21	6.0-8.9	1.0-4.0	.37	.43	1	7	38
	2-13	1-15	30-65	35-75	1.35-1.60	0.2-2	0.07-0.16	6.0-8.9	0.0-0.5	.32	.43			
	13-16	1-15	30-65	35-75	1.35-1.60	0.2-2	0.07-0.16	6.0-8.9	0.0-0.5	.32	.43			
	16-20	---	---	---	---	0.6-20	---	---	0.0-0.0	---	---			
RgG:														
Rock outcrop--------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
Rough---------------	0-2	15-35	45-65	10-25	1.20-1.40	2-20	0.04-0.10	0.0-2.9	0.5-2.0	.17	.28	1	8	0
	2-6	15-35	40-65	10-25	1.20-1.40	2-20	0.04-0.09	0.0-2.9	0.0-1.0	.10	.20			
	6-10	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
RuD:														
Rushtown------------	0-.5	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	---	---
	.5-6	10-30	45-70	12-25	1.20-1.40	6-20	0.10-0.17	0.0-2.9	4.0-10	.24	.28			
	6-22	10-30	45-70	15-27	1.20-1.40	6-20	0.06-0.14	0.0-2.9	0.2-1.0	.24	.32			
	22-65	10-30	45-70	15-27	1.20-1.40	6-20	0.03-0.12	0.0-2.9	0.1-0.5	.17	.28			
RuF:														
Rushtown------------	0-.5	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	---	---
	.5-6	10-30	45-70	12-25	1.20-1.40	6-20	0.10-0.17	0.0-2.9	4.0-10	.24	.28			
	6-22	10-30	45-70	15-27	1.20-1.40	6-20	0.06-0.14	0.0-2.9	0.2-1.0	.24	.32			
	22-65	10-30	45-70	15-27	1.20-1.40	6-20	0.03-0.12	0.0-2.9	0.1-0.5	.17	.28			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
ShC:														
Schaffenaker--------	0-.5	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	---	---
	.5-1	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	1-4	75-85	5-20	1-3	1.20-1.30	6-20	0.04-0.09	0.0-2.9	4.0-10	.17	.17			
	4-18	75-90	5-20	1-3	1.30-1.40	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.17			
	18-24	75-95	3-20	1-3	1.40-1.50	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.20			
	24-28	---	---	---	---	0.2-2	---	---	0.0-0.0	---	---			
SkF:														
Schaffenaker--------	0-.5	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	---	---
	.5-1	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	1-4	75-85	5-20	1-3	1.20-1.30	6-20	0.04-0.09	0.0-2.9	4.0-10	.17	.17			
	4-18	75-90	5-20	1-3	1.30-1.40	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.17			
	18-24	75-95	3-20	1-3	1.40-1.50	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.20			
	24-28	---	---	---	---	0.2-2	---	---	0.0-0.0	---	---			
Rock outcrop--------	0-60	---	---	---	---	---	---	---	---	---	---	--	---	---
SnE:														
Schaffenaker--------	0-.5	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	---	---
	.5-1	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	1-4	75-85	5-20	1-3	1.20-1.30	6-20	0.04-0.09	0.0-2.9	4.0-10	.17	.17			
	4-18	75-90	5-20	1-3	1.30-1.40	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.17			
	18-24	75-95	3-20	1-3	1.40-1.50	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.20			
	24-28	---	---	---	---	0.2-2	---	---	0.0-0.0	---	---			
Vanderlip-----------	0-2	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	4	8	0
	2-6	75-85	5-15	2-12	1.20-1.40	6-20	0.08-0.12	0.0-2.9	4.0-10	.15	.15			
	6-26	75-90	2-15	2-12	1.40-1.60	6-20	0.06-0.10	0.0-2.9	0.0-0.5	.15	.17			
	26-50	75-95	2-15	2-12	1.40-1.60	6-20	0.06-0.10	0.0-2.9	0.0-0.5	.15	.17			
	50-65	75-95	2-15	2-10	1.40-1.60	6-20	0.04-0.10	0.0-2.9	0.0-0.5	.15	.17			
SnF:														
Schaffenaker--------	0-.5	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	---	---
	.5-1	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	1-4	75-85	5-20	1-3	1.20-1.30	6-20	0.04-0.09	0.0-2.9	4.0-10	.17	.17			
	4-18	75-90	5-20	1-3	1.30-1.40	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.17			
	18-24	75-95	3-20	1-3	1.40-1.50	6-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.20			
	24-28	---	---	---	---	0.2-2	---	---	0.0-0.0	---	---			
Vanderlip-----------	0-2	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	4	8	0
	2-6	75-85	5-15	2-12	1.20-1.40	6-20	0.08-0.12	0.0-2.9	4.0-10	.15	.15			
	6-26	75-90	2-15	2-12	1.40-1.60	6-20	0.06-0.10	0.0-2.9	0.0-0.5	.15	.17			
	26-50	75-95	2-15	2-12	1.40-1.60	6-20	0.06-0.10	0.0-2.9	0.0-0.5	.15	.17			
	50-65	75-95	2-15	2-10	1.40-1.60	6-20	0.04-0.10	0.0-2.9	0.0-0.5	.15	.17			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
SxC:														
Sideling------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	5	8	0
	1-3	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	3-5	30-50	30-50	10-26	1.20-1.50	2-6	0.10-0.14	0.0-2.9	4.0-12	.20	.37			
	5-35	20-45	35-55	10-35	1.40-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.15	.28			
	35-50	15-40	25-50	27-50	1.40-1.70	0.06-0.2	0.06-0.20	6.0-8.9	0.0-0.0	.15	.28			
	50-62	15-40	25-50	27-50	1.40-1.70	0.06-0.2	0.06-0.20	6.0-8.9	0.0-0.0	.15	.28			
SxE:														
Sideling------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	5	8	0
	1-3	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	3-5	30-50	30-50	10-26	1.20-1.50	2-6	0.10-0.14	0.0-2.9	4.0-12	.20	.37			
	5-35	20-45	35-55	10-35	1.40-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.15	.28			
	35-50	15-40	25-50	27-50	1.40-1.70	0.06-0.2	0.06-0.20	6.0-8.9	0.0-0.0	.15	.28			
	50-62	15-40	25-50	27-50	1.40-1.70	0.06-0.2	0.06-0.20	6.0-8.9	0.0-0.0	.15	.28			
SyE:														
Sideling------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	5	8	0
	1-3	0-0	0-0	0-0	0.15-0.30	6-20	0.45-0.55	---	60-85	---	---			
	3-5	30-50	30-50	10-26	1.20-1.50	2-6	0.10-0.14	0.0-2.9	4.0-12	.20	.37			
	5-35	20-45	35-55	10-35	1.40-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.15	.28			
	35-50	15-40	25-50	27-50	1.40-1.70	0.06-0.2	0.06-0.20	6.0-8.9	0.0-0.0	.15	.28			
	50-62	15-40	25-50	27-50	1.40-1.70	0.06-0.2	0.06-0.20	6.0-8.9	0.0-0.0	.15	.28			
Ta:														
Tioga---------------	0-8	55-75	15-30	5-18	1.15-1.40	0.6-6	0.15-0.21	0.0-2.9	2.0-6.0	.37	.37	5	---	---
	8-36	45-75	15-35	5-18	1.15-1.45	0.6-6	0.07-0.20	0.0-2.9	0.0-1.0	.28	.43			
	36-41	45-85	5-35	3-15	1.25-1.55	0.6-20	0.02-0.20	0.0-2.9	0.0-1.0	.28	---			
	41-45	45-85	5-35	3-15	1.25-1.55	0.6-20	0.02-0.20	0.0-2.9	0.0-1.0	.28	---			
	45-60	45-85	5-35	3-15	1.25-1.55	0.6-20	0.02-0.20	0.0-2.9	0.0-1.0	.28	---			
TyA:														
Tygart--------------	0-9	10-30	45-65	15-27	1.20-1.40	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.43	.43	3	---	---
	9-17	5-25	40-60	35-50	1.20-1.50	0.06-0.2	0.10-0.14	3.0-5.9	0.2-0.5	.32	.32			
	17-32	5-25	35-55	35-50	1.20-1.50	0.06-0.2	0.10-0.14	3.0-5.9	0.2-0.5	.32	.32			
	32-46	5-25	35-55	35-50	1.20-1.50	0.06-0.2	0.10-0.14	3.0-5.9	0.2-0.5	.32	.32			
	46-60	5-25	35-55	30-50	1.30-1.60	0.06-0.2	0.10-0.14	3.0-5.9	0.1-0.2	.32	.32			
Ua:														
Udorthents.														
Uu:														
Urban land.														
Udorthents.														

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
WaB:														
Weikert-------------	0-6	25-40	50-60	10-25	1.20-1.40	2-6	0.08-0.14	0.0-2.9	1.0-4.0	.28	---	2	---	---
	6-11	25-45	40-60	10-25	1.20-1.40	2-6	0.06-0.11	0.0-2.9	0.0-0.5	.28	---			
	11-14	25-45	40-60	10-25	1.20-1.40	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.28	---			
	14-18	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
WaC:														
Weikert-------------	0-5	25-40	50-60	10-25	1.20-1.40	2-6	0.08-0.14	0.0-2.9	1.0-4.0	.28	---	2	---	---
	5-10	25-45	40-60	10-25	1.20-1.40	2-6	0.06-0.11	0.0-2.9	0.0-0.5	.28	---			
	10-13	25-45	40-60	10-25	1.20-1.40	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.28	---			
	13-17	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
WbC:														
Weikert-------------	0-6	25-40	50-60	10-25	1.20-1.40	2-6	0.08-0.14	0.0-2.9	1.0-4.0	.28	---	2	---	---
	6-14	25-45	40-60	10-25	1.20-1.40	2-6	0.06-0.11	0.0-2.9	0.0-0.5	.28	---			
	14-18	25-45	40-60	10-25	1.20-1.40	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.28	---			
	18-22	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Berks---------------	0-7	25-45	50-60	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	7-12	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	12-21	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	21-25	25-45	35-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.0	.17	.24			
	25-29	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
WbD:														
Weikert-------------	0-4	25-40	50-60	10-25	1.20-1.40	2-6	0.08-0.14	0.0-2.9	1.0-4.0	.28	---	2	---	---
	4-12	25-45	40-60	10-25	1.20-1.40	2-6	0.06-0.11	0.0-2.9	0.0-0.5	.28	---			
	12-16	25-45	40-60	10-25	1.20-1.40	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.28	---			
	16-20	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Berks---------------	0-5	25-45	50-60	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	2.0-4.0	.17	.32	3	6	48
	5-10	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	10-19	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	19-23	25-50	35-55	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.0	.17	.24			
	23-27	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
WkF:														
Weikert-------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	2	---	---
	1-3	25-40	50-60	15-27	1.20-1.40	2-6	0.06-0.12	0.0-2.9	1.0-4.0	.28	---			
	3-14	25-45	40-60	10-25	1.20-1.40	2-6	0.04-0.08	0.0-2.9	0.0-0.5	.28	---			
	14-18	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			
Berks---------------	0-1	0-0	0-0	0-0	0.10-0.30	6-20	0.55-0.65	---	65-90	---	---	3	8	0
	1-3	25-45	50-60	5-23	1.20-1.50	0.6-6	0.04-0.10	0.0-2.9	2.0-4.0	.17	.32			
	3-13	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	13-25	25-45	35-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.0	.17	.24			
	25-29	---	---	---	---	0.06-20	---	---	0.0-0.0	---	---			

Table 19.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction
	In	meq/100 g	meq/100 g	pH
AgB:				
Allegheny-----------	0-8	6.0-16	3.8-12	5.0-7.3
	8-42	4.7-9.9	3.6-7.4	4.5-5.5
	42-65	2.5-9.9	2.0-7.4	4.5-5.5
AgC:				
Allegheny-----------	0-7	6.0-16	4.5-12	5.0-7.3
	7-41	4.7-9.9	3.5-7.4	4.5-5.5
	41-65	2.5-9.9	1.9-7.4	4.5-5.5
AnB:				
Andover-------------	0-8	10-26	2.8-8.4	4.5-5.5
	8-19	6.0-18	3.6-7.4	4.5-5.5
	19-46	6.0-18	3.6-7.4	4.5-5.5
	46-65	6.0-18	3.6-8.4	4.5-5.5
Ba:				
Basher--------------	0-8	3.8-16	2.8-12	5.0-7.3
	8-22	1.5-11	1.1-8.4	4.5-6.0
	22-46	1.5-6.3	1.1-4.7	4.5-6.5
	46-65	0.2-3.1	0.2-2.3	4.5-6.5
BbC:				
Berks---------------	0-1	75-120	56-90	3.6-4.5
	1-4	10-33	7.7-25	3.6-5.5
	4-21	1.2-9.1	1.3-9.8	3.6-5.5
	21-24	1.2-6.2	1.2-6.2	3.6-5.5
	24-28	---	---	---
BbE:				
Berks---------------	0-1	75-120	56-90	3.6-4.5
	1-4	10-33	7.7-25	3.6-5.5
	4-21	1.2-9.1	1.3-9.8	3.6-5.5
	21-24	1.2-6.1	1.2-6.2	3.6-5.5
	24-28	---	---	---
BcD:				
Berks---------------	0-5	10-33	7.7-25	3.6-5.5
	5-19	1.2-9.1	1.3-9.8	3.6-5.5
	19-23	1.2-6.1	1.2-6.2	3.6-5.5
	23-27	---	---	---
Calvin--------------	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
BcE:				
Berks---------------	0-5	10-33	7.7-25	3.6-5.5
	5-19	1.2-9.1	1.3-9.8	3.6-5.5
	19-23	1.2-6.1	1.2-6.2	3.6-5.5
	23-27	---	---	---
Calvin--------------	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---

Table 19.--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
BcF:				
Berks----------------	0-5	10-33	7.7-25	3.6-5.5
	5-19	1.2-9.1	1.3-9.8	3.6-5.5
	19-23	1.2-6.1	1.2-6.2	3.6-5.5
	23-27	---	---	---
Calvin---------------	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
BeB:				
Berks----------------	0-7	10-33	7.7-25	3.6-5.5
	7-21	1.2-9.1	1.3-9.8	3.6-5.5
	21-25	1.2-6.1	1.2-6.2	3.6-5.5
	25-29	---	---	---
Clearbrook-----------	0-8	5.5-14	4.1-10	4.5-6.5
	8-19	7.0-13	5.2-10	4.5-5.5
	19-22	8.8-19	6.6-14	4.5-5.5
	22-26	---	---	---
BeC:				
Berks----------------	0-7	10-33	7.7-25	3.6-5.5
	7-21	1.2-9.1	1.3-9.8	3.6-5.5
	21-25	1.2-6.1	1.2-6.2	3.6-5.5
	25-29	---	---	---
Clearbrook-----------	0-8	5.0-14	4.1-10	4.5-6.5
	8-19	7.0-13	5.2-10	4.5-5.5
	19-22	8.8-19	6.6-14	4.5-5.5
	22-26	---	---	---
BkB:				
Berks----------------	0-7	10-33	7.7-25	3.6-5.5
	7-21	1.2-9.1	1.3-9.8	3.6-5.5
	21-25	1.2-6.1	1.2-6.2	3.6-5.5
	25-29	---	---	---
Weikert--------------	0-6	5.8-18	4.3-13	3.5-5.5
	6-14	3.5-9.9	2.6-7.4	3.5-5.5
	14-18	3.5-9.9	2.6-7.4	3.5-5.5
	18-22	---	---	---
BqF:				
Blackthorn-----------	0-1	80-125	60-94	3.5-4.5
	1-2	75-120	56-90	3.6-4.5
	2-7	9.5-34	7.1-36	4.5-6.0
	7-47	2.2-6.3	1.7-5.1	4.5-6.0
	47-65	7.0-16	5.2-12	4.5-5.5
BrB:				
Brinkerton-----------	0-7	7.5-26	5.6-21	4.5-6.0
	7-21	5.2-20	3.9-16	4.5-6.0
	21-45	5.2-20	3.9-16	4.5-6.0
	45-60	5.2-16	3.9-7.4	5.1-6.5
BuB:				
Buchanan-------------	0-8	13-32	10-24	4.5-5.5
	8-33	4.0-16	3.0-9.7	4.5-5.5
	33-65	4.0-16	3.0-9.7	4.5-5.5

Table 19.--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
BuC:				
Buchanan	0-8	13-32	10-24	4.5-5.5
	8-33	4.0-16	3.0-9.7	4.5-5.5
	33-65	4.0-16	3.0-9.7	4.5-5.5
BxC:				
Buchanan	0-3	80-125	60-94	3.5-4.5
	3-4	90-135	68-101	3.5-4.5
	4-5	13-32	10-24	3.5-5.5
	5-33	4.0-16	3.0-9.7	3.5-5.5
	33-65	4.0-16	3.0-9.7	3.5-5.5
BxE:				
Buchanan	0-2	80-125	60-94	3.5-4.5
	2-4	13-32	10-24	3.5-5.5
	4-30	4.0-16	3.0-9.7	3.5-5.5
	30-65	4.0-16	3.0-9.7	3.5-5.5
CbB:				
Calvin	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
Berks	0-5	10-33	7.7-25	3.6-5.5
	5-19	1.2-9.1	1.3-9.8	3.6-5.5
	19-23	1.2-6.1	1.2-6.2	3.6-5.5
	23-27	---	---	---
CbC:				
Calvin	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
Berks	0-5	10-33	7.7-25	3.6-5.5
	5-19	1.2-9.1	1.3-9.8	3.6-5.5
	19-23	1.2-6.1	1.2-6.2	3.6-5.5
	23-27	---	---	---
CkB:				
Calvin	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
Klinesville	0-2	3.2-11	2.4-8.7	4.5-6.0
	2-14	2.7-7.5	2.0-6.2	4.5-6.0
	14-18	2.7-7.5	2.0-6.2	4.5-6.0
	18-22	---	---	---
CkC:				
Calvin	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
Klinesville	0-2	3.2-11	2.4-8.7	4.5-6.0
	2-14	2.7-7.5	2.0-6.2	4.5-6.0
	14-18	2.7-7.5	2.0-6.2	4.5-6.0
	18-22	---	---	---

Table 19.--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
CkD:				
Calvin---------------	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
Klinesville----------	0-2	3.2-11	2.4-8.7	4.5-6.0
	2-14	2.7-7.5	2.0-6.2	4.5-6.0
	14-18	2.7-7.5	2.0-6.2	4.5-6.0
	18-22	---	---	---
CkE:				
Calvin---------------	0-3	8.0-18	6.0-18	4.5-6.0
	3-18	3.7-9.9	2.8-9.9	4.5-6.0
	18-26	3.5-9.9	2.6-9.9	4.5-6.0
	26-30	---	---	---
Klinesville----------	0-2	3.2-11	2.4-8.7	4.5-6.0
	2-14	2.7-7.5	2.0-6.2	4.5-6.0
	14-18	2.7-7.5	2.0-6.2	4.5-6.0
	18-22	---	---	---
CkF:				
Calvin---------------	0-3	8.0-18	6.0-13	4.5-6.0
	3-18	3.7-9.9	2.8-7.4	4.5-6.0
	18-26	3.5-9.9	2.6-7.4	4.5-6.0
	26-30	---	---	---
Klinesville----------	0-2	3.2-11	2.4-8.7	4.5-6.0
	2-14	2.7-7.5	2.0-6.2	4.5-6.0
	14-18	2.7-7.5	2.0-6.2	4.5-6.0
	18-22	---	---	---
ClC:				
Caneyville-----------	0-4	15-20	11-15	5.1-7.3
	4-12	15-25	11-19	5.1-7.3
	12-24	18-30	14-22	5.6-7.8
	24-28	---	---	---
ClD:				
Caneyville-----------	0-4	15-20	11-15	5.1-7.3
	4-12	15-25	11-19	5.1-7.3
	12-24	18-30	14-22	5.6-7.8
	24-28	---	---	---
ClE:				
Caneyville-----------	0-4	15-20	11-15	5.1-7.3
	4-12	15-25	11-19	5.1-7.3
	12-24	18-30	14-22	5.6-7.8
	24-28	---	---	---
CnF:				
Caneyville-----------	0-4	15-20	11-15	5.1-7.3
	4-24	18-30	14-22	5.6-7.8
	24-28	---	---	---
CrB:				
Clarksburg-----------	0-12	15-23	11-19	5.1-6.5
	12-29	15-20	13-17	5.1-6.5
	29-60	7.9-13	5.9-10	5.1-6.5

Table 19.--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
CrC:				
Clarksburg-----------	0-12	15-23	11-19	5.1-6.5
	12-29	15-20	13-17	5.1-6.5
	29-60	7.9-13	5.9-10	5.1-6.5
CvB:				
Clearbrook-----------	0-8	5.5-14	4.1-10	4.5-6.5
	8-19	11-19	9.2-15	4.5-5.5
	19-22	15-25	13-20	4.5-5.5
	22-26	---	---	---
Cavode---------------	0-12	9.8-21	7.3-16	4.5-5.5
	12-51	18-22	14-18	4.5-5.5
	51-62	9.0-17	6.7-13	4.5-5.5
	62-66	---	---	---
Cz:				
Combs----------------	0-20	5.0-10	3.8-7.5	5.6-7.3
	20-53	3.0-12	1.8-6.0	5.6-7.3
	53-65	3.0-12	1.8-6.0	5.6-7.3
DkC:				
Dekalb---------------	0-1	75-120	56-90	3.5-4.5
	1-4	12-32	8.6-24	3.5-4.5
	4-15	1.8-6.9	1.3-5.2	3.5-5.5
	15-24	1.2-5.9	0.9-4.7	3.5-5.5
	24-28	---	---	---
DrE:				
Dekalb---------------	0-1	75-120	56-90	3.5-4.5
	1-3	12-32	8.6-24	3.5-4.5
	3-24	1.8-6.9	1.3-5.2	3.5-5.5
	24-34	1.2-5.9	0.9-4.7	3.5-5.5
	34-38	---	---	---
Rock outcrop---------	0-60	---	---	---
DsB:				
Downsville-----------	0-10	5.2-14	3.9-10	5.0-7.3
	10-18	3.0-5.6	2.2-4.2	4.5-5.5
	18-30	8.5-15	7.3-12	4.5-5.5
	30-99	8.2-14	7.1-11	4.5-5.5
DsC:				
Downsville-----------	0-7	5.2-14	3.9-10	5.0-7.3
	7-15	3.0-5.6	2.2-4.2	4.5-5.5
	15-27	8.5-15	7.3-12	4.5-5.5
	27-99	8.2-14	7.1-11	4.5-5.5
Dz:				
Dunning--------------	0-12	14-36	---	5.6-7.8
	12-46	15-24	---	5.6-7.8
	46-65	7.7-24	---	5.6-7.8
ErB:				
Ernest---------------	0-7	18-25	4.5-7.0	4.5-6.0
	7-27	14-25	4.0-7.4	4.5-5.5
	27-43	12-22	3.6-6.4	4.5-5.5
	43-65	12-22	4.0-7.4	4.5-5.5

Table 19.--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
ErC:				
Ernest---------------	0-6	18-25	4.5-7.0	4.5-6.0
	6-26	14-25	4.0-7.4	4.5-5.5
	26-42	12-22	3.6-6.4	4.5-5.5
	42-65	12-22	4.0-7.4	4.5-5.5
HaE:				
Hazleton-------------	0-1	80-125	60-94	3.5-4.5
	1-2	90-135	68-101	3.5-4.5
	2-5	11-32	8.1-24	3.5-5.5
	5-49	1.8-6.9	1.3-5.2	3.5-5.5
	49-65	1.2-6.6	0.9-5.4	3.5-5.5
Dekalb---------------	0-1	75-120	56-90	3.5-4.5
	1-4	12-32	8.6-24	3.5-4.5
	4-15	1.8-6.9	1.3-5.2	3.5-5.5
	15-24	1.2-5.9	0.9-4.7	3.5-5.5
	24-28	---	---	---
HaF:				
Hazleton-------------	0-1	80-125	60-94	3.5-4.5
	1-2	90-135	68-101	3.5-4.5
	2-5	11-32	8.1-24	3.5-5.5
	5-49	1.8-6.9	1.3-5.2	3.5-5.5
	49-65	1.2-6.6	0.9-5.4	3.5-5.5
Dekalb---------------	0-1	75-120	56-90	3.5-4.5
	1-4	12-32	8.6-24	3.5-4.5
	4-15	1.8-6.9	1.3-5.2	3.5-5.5
	15-24	1.2-5.9	0.9-4.7	3.5-5.5
	24-28	---	---	---
HdF:				
Hazleton-------------	0-1	80-125	60-94	3.5-4.5
	1-2	90-135	68-101	3.5-4.5
	2-5	11-32	8.1-24	3.5-5.5
	5-49	1.8-6.9	1.3-5.2	3.5-5.5
	49-65	1.2-6.6	0.9-5.4	3.5-5.5
Dekalb---------------	0-1	75-120	56-90	3.5-4.5
	1-4	12-32	8.6-24	3.5-4.5
	4-15	1.8-6.9	1.3-5.2	3.5-5.5
	15-24	1.2-5.9	0.9-4.7	3.5-5.5
	24-28	---	---	---
Rock outcrop---------	0-60	---	---	---
HeF:				
Hazleton-------------	0-1	80-125	60-94	3.5-4.5
	1-2	90-135	68-101	3.5-4.5
	2-5	11-32	8.1-24	3.5-5.5
	5-49	1.8-6.9	1.3-5.2	3.5-5.5
	49-65	1.2-6.6	0.9-5.4	3.5-5.5
Dekalb---------------	0-1	75-120	56-90	3.5-4.5
	1-4	12-32	8.6-24	3.5-4.5
	4-15	1.8-6.9	1.3-5.2	3.5-5.5
	15-24	1.2-5.9	0.9-4.7	3.5-5.5
	24-28	---	---	---
Rock outcrop---------	0-60	---	---	---

Table 19.--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
HlF:				
Hazleton-------------	0-1	80-125	60-94	3.5-4.5
	1-2	90-135	68-101	3.5-4.5
	2-5	11-32	8.1-24	3.5-5.5
	5-49	1.8-6.9	1.3-5.2	3.5-5.5
	49-65	1.2-6.6	0.9-5.4	3.5-5.5
Lehew----------------	0-.5	80-125	60-94	3.5-4.5
	.5-6	10-31	7.5-23	4.0-5.5
	6-29	1.7-5.6	1.3-4.2	4.5-5.5
	29-35	1.5-5.2	1.1-3.9	4.5-5.5
	35-39	---	---	---
Dekalb---------------	0-1	75-120	56-90	3.5-4.5
	1-4	12-32	8.6-24	3.5-4.5
	4-15	1.8-6.9	1.3-5.2	3.5-5.5
	15-24	1.2-5.9	0.9-4.7	3.5-5.5
	24-28	---	---	---
Ho:				
Holly----------------	0-3	9.8-21	---	5.6-7.3
	3-24	6.3-12	---	5.1-7.3
	24-39	3.5-11	---	5.1-7.3
	39-65	2.1-11	---	5.6-7.8
HwB:				
Hustontown-----------	0-8	15-45	---	5.1-6.5
	8-12	15-40	11-30	4.5-6.0
	12-20	5.8-21	4.4-16	4.5-6.0
	20-30	5.8-21	4.4-16	4.5-6.0
	30-65	8.8-19	6.6-16	5.0-6.5
Ln:				
Lindside-------------	0-7	9.8-23	7.3-17	5.1-7.8
	7-48	6.8-16	5.1-12	5.1-7.8
	48-60	6.5-13	4.9-9.7	5.6-7.8
LzC:				
Litz-----------------	0-.5	90-135	68-101	3.5-4.5
	.5-4	7.0-25	5.2-19	4.5-6.0
	4-27	5.5-13	4.9-10	4.5-6.0
	27-31	8.7-14	7.4-11	4.5-6.0
	31-35	---	---	---
LzD:				
Litz-----------------	0-.5	90-135	68-101	3.5-4.5
	.5-4	7.0-25	5.2-19	4.5-6.0
	4-27	5.5-13	4.9-10	4.5-6.0
	27-31	8.7-14	7.4-11	4.5-6.0
	31-35	---	---	---
LzE:				
Litz-----------------	0-.5	90-135	68-101	3.5-4.5
	.5-4	7.0-25	5.2-19	4.5-6.0
	4-27	5.5-13	4.9-10	4.5-6.0
	27-31	8.7-14	7.4-11	4.5-6.0
	31-35	---	---	---

Table 19.--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
LzF:				
Litz-----------------	0-.5	90-135	68-101	3.5-4.5
	.5-4	7.0-25	5.2-19	4.5-6.0
	4-27	5.5-13	4.9-10	4.5-6.0
	27-31	8.7-14	7.4-11	4.5-6.0
	31-35	---	---	---
Me:				
Melvin---------------	0-10	10-24	---	5.6-7.8
	10-36	8.0-22	---	5.6-7.8
	36-68	8.0-22	---	5.6-7.8
	68-72	---	---	---
MhA:				
Monongahela----------	0-10	8.0-18	6.0-14	5.0-7.3
	10-27	6.3-13	4.7-10	4.5-5.5
	27-53	6.3-13	4.7-10	4.5-5.5
	53-65	5.2-13	3.9-10	4.5-5.5
MhB:				
Monongahela----------	0-8	8.0-18	6.0-14	5.0-7.3
	8-30	6.3-13	4.7-10	4.5-5.5
	30-51	6.3-13	4.7-10	4.5-5.5
	51-65	5.2-13	3.9-10	4.5-5.5
MhC:				
Monongahela----------	0-8	8.0-18	6.0-14	5.0-7.3
	8-28	6.3-13	4.7-10	4.5-5.5
	28-49	6.3-13	4.7-10	4.5-5.5
	49-65	5.2-13	3.9-10	4.5-5.5
MrC:				
Murrill--------------	0-9	8.0-30	6.0-22	4.5-6.0
	9-55	6.8-14	5.1-11	4.5-6.0
	55-72	9.7-20	7.3-15	4.5-6.0
MrD:				
Murrill--------------	0-9	8.0-30	6.0-22	4.5-6.0
	9-55	6.8-14	5.1-11	4.5-6.0
	55-72	9.7-20	7.3-15	4.5-6.0
MsC:				
Murrill--------------	0-9	12-38	9.4-29	4.5-6.0
	9-43	6.8-14	5.1-11	4.5-6.0
	43-60	9.7-20	7.3-15	4.5-6.0
MsE:				
Murrill--------------	0-9	12-38	9.4-29	4.5-6.0
	9-43	6.8-14	5.1-11	4.5-6.0
	43-60	9.7-20	7.3-15	4.5-6.0
Pg:				
Philo----------------	0-9	7.0-18	5.2-14	4.5-7.3
	9-48	3.0-7.9	2.2-5.9	4.5-6.0
	48-65	1.5-5.6	1.1-4.2	4.5-6.0
Ph:				
Philo----------------	0-10	7.0-18	5.2-14	4.5-7.3
	10-53	3.0-7.9	2.2-5.9	4.5-6.0
	53-65	1.5-5.6	1.1-4.2	4.5-6.0

Table 19.--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
Ps:				
Pope	0-10	8.0-20	6.0-15	4.5-7.3
	10-42	1.9-9.0	1.4-6.8	4.5-5.5
	42-65	1.9-8.6	1.4-6.5	4.5-5.5
Px:				
Pope	0-10	8.0-20	6.0-15	4.5-7.3
	10-51	1.9-9.0	1.4-6.8	4.5-5.5
	51-65	1.9-8.6	1.4-6.5	4.5-5.5
Pz:				
Pope	0-10	8.0-20	6.0-15	4.0-5.5
	10-26	1.9-9.0	1.4-6.8	4.0-5.5
	26-65	0.7-7.4	0.5-5.5	4.5-6.0
Philo	0-10	7.0-18	5.2-14	4.0-6.0
	10-21	3.0-7.9	2.2-5.9	4.0-6.0
	21-65	1.5-5.6	1.1-4.2	4.5-6.0
Qm:				
Quarry, limestone	0-60	---	---	---
Qo:				
Quarry, sandstone	0-60	---	---	---
Qs:				
Quarry, shale	0-60	---	---	---
ReG:				
Rock outcrop	0-60	---	---	---
Opequon	0-2	14-22	---	5.1-7.8
	2-13	14-26	---	5.1-7.8
	13-16	14-26	---	5.1-7.8
	16-20	---	---	---
RgG:				
Rock outcrop	0-60	---	---	---
Rough	0-2	4.6-13	3.5-9.9	3.5-5.5
	2-6	3.5-11	2.6-8.2	3.5-5.5
	6-10	---	---	---
RuD:				
Rushtown	0-.5	80-125	60-94	3.5-4.5
	.5-6	13-31	9.9-23	4.5-6.0
	6-22	5.8-12	4.4-8.8	4.5-5.5
	22-65	5.5-11	4.1-7.9	4.5-6.0
RuF:				
Rushtown	0-.5	80-125	60-94	3.5-4.5
	.5-6	13-31	9.9-23	4.5-6.0
	6-22	5.8-12	4.4-8.8	4.5-5.5
	22-65	5.5-11	4.1-7.9	4.5-6.0
ShC:				
Schaffenaker	0-.5	80-125	60-94	3.5-4.5
	.5-1	90-135	68-101	3.5-4.5
	1-4	9.2-23	6.9-17	3.5-5.5
	4-18	0.2-1.9	0.2-1.4	3.5-5.5
	18-24	0.2-1.9	0.2-1.4	3.5-5.5
	24-28	---	---	---

Table 19.--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
SkF:				
Schaffenaker---------	0-.5	80-125	60-94	3.5-4.5
	.5-1	90-135	68-101	3.5-4.5
	1-4	9.2-23	6.9-17	3.5-5.5
	4-18	0.2-1.9	0.2-1.4	3.5-5.5
	18-24	0.2-1.9	0.2-1.4	3.5-5.5
	24-28	---	---	---
Rock outcrop---------	0-60	---	---	---
SnE:				
Schaffenaker---------	0-.5	80-125	60-94	3.5-4.5
	.5-1	90-135	68-101	3.5-4.5
	1-4	9.2-23	6.9-17	3.5-5.5
	4-18	0.2-1.9	0.2-1.4	3.5-5.5
	18-24	0.2-1.9	0.2-1.4	3.5-5.5
	24-28	---	---	---
Vanderlip-----------	0-2	80-125	60-94	3.5-4.5
	2-6	9.5-26	7.1-19	4.5-6.0
	6-26	0.5-4.1	0.4-3.1	4.5-6.0
	26-50	0.5-4.1	0.4-3.1	4.5-6.0
	50-65	0.5-3.6	0.4-2.7	4.5-6.0
SnF:				
Schaffenaker---------	0-.5	80-125	60-94	3.5-4.5
	.5-1	90-135	68-101	3.5-4.5
	1-4	9.2-23	6.9-17	3.5-5.5
	4-18	0.2-1.9	0.2-1.4	3.5-5.5
	18-24	0.2-1.9	0.2-1.4	3.5-5.5
	24-28	---	---	---
Vanderlip-----------	0-2	80-125	60-94	3.5-4.5
	2-6	9.5-26	7.1-19	4.5-6.0
	6-26	0.5-4.1	0.4-3.1	4.5-6.0
	26-50	0.5-4.1	0.4-3.1	4.5-6.0
	50-65	0.5-3.6	0.4-2.7	4.5-6.0
SxC:				
Sideling------------	0-1	80-125	60-94	3.5-4.5
	1-3	90-135	68-101	3.5-4.5
	3-5	12-36	9.4-27	3.5-5.5
	5-35	3.5-13	2.6-10	3.5-5.5
	35-50	9.4-18	7.1-13	3.5-5.5
	50-62	9.4-18	7.1-13	3.5-5.5
SxE:				
Sideling------------	0-1	80-125	60-94	3.5-4.5
	1-3	90-135	68-101	3.5-4.5
	3-5	12-36	9.4-27	3.5-5.5
	5-35	3.5-13	2.6-10	3.5-5.5
	35-50	9.4-18	7.1-13	3.5-5.5
	50-62	9.4-18	7.1-13	3.5-5.5
SyE:				
Sideling------------	0-1	80-125	60-94	3.5-4.5
	1-3	90-135	68-101	3.5-4.5
	3-5	12-36	9.4-27	3.5-5.5
	5-35	3.5-13	2.6-10	3.5-5.5
	35-50	9.4-18	7.1-13	3.5-5.5
	50-62	9.4-18	7.1-13	3.5-5.5

Table 19.--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
Ta:				
Tioga----------------	0-8	6.2-20	4.7-15	5.1-7.3
	8-36	1.8-8.6	1.3-6.4	5.1-7.3
	36-41	1.1-7.5	0.8-5.6	5.6-7.8
	41-45	1.1-7.5	0.8-5.6	5.6-7.8
	45-60	1.1-7.5	0.8-5.6	5.6-7.8
TyA:				
Tygart---------------	0-9	8.2-16	6.2-12	4.5-7.3
	9-17	9.3-14	7.0-10	3.6-5.5
	17-32	9.3-14	7.0-10	3.6-5.5
	32-46	9.3-14	7.0-10	3.6-5.5
	46-60	7.7-13	5.8-9.8	3.6-5.5
Ua:				
Udorthents.				
Uu:				
Urban land.				
Udorthents.				
WaB:				
Weikert--------------	0-6	5.8-18	4.3-13	3.5-5.5
	6-11	3.5-9.9	2.6-7.4	3.5-5.5
	11-14	3.5-9.9	2.6-7.4	3.5-5.5
	14-18	---	---	---
WaC:				
Weikert--------------	0-5	5.8-18	4.3-13	3.5-5.5
	5-10	3.5-9.9	2.6-7.4	3.5-5.5
	10-13	3.5-9.9	2.6-7.4	3.5-5.5
	13-17	---	---	---
WbC:				
Weikert--------------	0-6	5.8-18	4.3-13	3.5-5.5
	6-14	3.5-9.9	2.6-7.4	3.5-5.5
	14-18	3.5-9.9	2.6-7.4	3.5-5.5
	18-22	---	---	---
Berks----------------	0-7	6.2-17	4.7-13	3.6-5.5
	7-12	1.2-9.1	1.3-9.8	3.6-5.5
	12-21	1.2-9.1	1.3-9.8	3.6-5.5
	21-25	1.2-7.7	1.3-5.9	3.6-5.5
	25-29	---	---	---
WbD:				
Weikert--------------	0-4	5.8-18	4.3-13	3.5-5.5
	4-12	3.5-9.9	2.6-7.4	3.5-5.5
	12-16	3.5-9.9	2.6-7.4	3.5-5.5
	16-20	---	---	---
Berks----------------	0-5	6.2-17	4.7-13	3.6-5.5
	5-10	1.2-9.1	1.3-9.8	3.6-5.5
	10-19	1.2-9.1	1.3-9.8	3.6-5.5
	19-23	1.2-7.7	1.3-5.9	3.6-5.5
	23-27	---	---	---

Table 19.--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
WkF:				
Weikert	0-1	80-125	60-94	3.5-4.5
	1-3	7.5-18	5.6-14	4.5-6.0
	3-14	3.5-9.9	2.6-7.4	4.5-6.0
	14-18	---	---	---
Berks	0-1	80-125	60-94	3.6-4.5
	1-3	6.2-17	4.7-13	3.6-5.5
	3-13	1.2-12	1.3-9.2	3.6-5.5
	13-25	1.2-11	1.3-8.4	3.6-5.5
	25-29	---	---	---

Table 20.--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	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
AgB:							
Allegheny	---	---	---	---	Moderate	Low	High
AgC:							
Allegheny	---	---	---	---	Moderate	Low	High
AnB:							
Andover	Fragipan	16-28	33-39	Noncemented	High	High	High
Ba:							
Basher	---	---	---	---	High	Moderate	Moderate
BbC:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
BbE:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
BcD:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
BcE:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
BcF:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Depth to top	Thickness	Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Concrete
		In	In				
BeB:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
Clearbrook	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	High	Moderate
BeC:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
Clearbrook	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	High	Moderate
BkB:							
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
Weikert	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	Moderate
BqF:							
Blackthorn	---	---	---	---	Low	Moderate	High
BrB:							
Brinkerton	Fragipan	15-30	8-32	Noncemented	High	High	High
BuB:							
Buchanan	Fragipan	20-36	13-50	Noncemented	Moderate	High	High
BuC:							
Buchanan	Fragipan	20-36	13-50	Noncemented	Moderate	High	High
BxC:							
Buchanan	Fragipan	20-36	13-50	Noncemented	Moderate	High	High
BxE:							
Buchanan	Fragipan	20-36	13-50	Noncemented	Moderate	High	High
CbB:							
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
CbC:							
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
CkB:							
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
Klinesville	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	High
CkC:							
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
Klinesville	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	High
CkD:							
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
Klinesville	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	High
CkE:							
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Low	Moderate
Klinesville	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	High
CkF:							
Calvin	Bedrock (paralithic)	20-40	---	Very strongly cenmented	Moderate	Low	Moderate
Klinesville	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	High
ClC:							
Caneyville	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
ClD:							
Caneyville	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
ClE:							
Caneyville	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
CnF:							
Caneyville	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
CrB:							
Clarksburg	Fragipan	20-36	10-30	Noncemented	Moderate	Moderate	Moderate
CrC:							
Clarksburg	Fragipan	20-36	10-30	Noncemented	Moderate	Moderate	Moderate
CvB:							
Clearbrook	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	High	Moderate
Cavode	Bedrock (paralithic)	40-72	---	Very strongly cemented	High	High	High
Cz:							
Combs	---	---	---	---	None	Low	Low
DkC:							
Dekalb	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
DrE:							
Dekalb	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	None	---	---
DsB:							
Downsville	---	---	---	---	Moderate	Low	High
DsC:							
Downsville	---	---	---	---	Moderate	Low	High
Dz:							
Dunning	---	---	---	---	High	High	Moderate
ErB:							
Ernest	Fragipan	20-36	10-40	Noncemented	Moderate	Moderate	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Depth to top	Thickness	Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Concrete
		In	In				
ErC:							
Ernest	Fragipan	20-36	10-40	Noncemented	Moderate	Moderate	Moderate
HaE:							
Hazleton	Bedrock (lithic)	60-180	---	Indurated	Moderate	Low	High
Dekalb	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
HaF:							
Hazleton	Bedrock (lithic)	60-180	---	Indurated	Moderate	Low	High
Dekalb	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
HdF:							
Hazleton	Bedrock (lithic)	60-180	---	Indurated	Moderate	Low	High
Dekalb	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	None	---	---
HeF:							
Hazleton	Bedrock (lithic)	60-180	---	Indurated	Moderate	Low	High
Dekalb	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	None	---	---
HlF:							
Hazleton	Bedrock (lithic)	60-180	---	Indurated	Moderate	Low	High
Lehew	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Dekalb	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Ho:							
Holly	---	---	---	---	High	High	Moderate
HwB:							
Hustontown	Fragipan	18-32	---	Noncemented	High	High	High
Ln:							
Lindside	---	---	---	---	High	Moderate	Low
LzC:							
Litz	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Moderate	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
LzD:							
Litz	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Moderate	High
LzE:							
Litz	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Moderate	High
LzF:							
Litz	Bedrock (paralithic)	20-40	---	Very strongly cemented	Moderate	Moderate	High
Me:							
Melvin	---	---	---	---	High	High	Low
MhA:							
Monongahela	Fragipan	18-30	8-27	Noncemented	Moderate	High	High
MhB:							
Monongahela	Fragipan	18-30	8-27	Noncemented	Moderate	High	High
MhC:							
Monongahela	Fragipan	18-30	8-27	Noncemented	Moderate	High	High
MrC:							
Murrill	---	---	---	---	Moderate	Moderate	High
MrD:							
Murrill	---	---	---	---	Moderate	Moderate	High
MsC:							
Murrill	---	---	---	---	Moderate	Moderate	High
MsE:							
Murrill	---	---	---	---	Moderate	Moderate	High
Pg:							
Philo	---	---	---	---	Moderate	Low	High
Ph:							
Philo	---	---	---	---	Moderate	Low	High
Ps:							
Pope	---	---	---	---	Moderate	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
Px:							
Pope	---	---	---	---	Moderate	Low	High
Pz:							
Pope	---	---	---	---	Moderate	Low	High
Philo	---	---	---	---	Moderate	Low	High
Qm:							
Quarry, limestone	Bedrock (lithic)	0-0	---	---	None	---	---
Qo:							
Quarry, sandstone	Bedrock (lithic)	0-0	---	---	None	---	---
Qs:							
Quarry, shale	Bedrock (lithic)	0-0	---	---	None	---	---
ReG:							
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	None	---	---
Opequon	Bedrock (lithic)	12-20	---	Indurated	Moderate	Moderate	Low
RgG:							
Rock outcrop	Bedrock (lithic)	0-0	---	Very strongly cemented	None	---	---
Rough	Bedrock (paralithic)	4-10	---	Very strongly cemented	Moderate	Moderate	Moderate
RuD:							
Rushtown	---	---	---	---	Low	Low	Moderate
RuF:							
Rushtown	---	---	---	---	Low	Low	Moderate
ShC:							
Schaffenaker	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
SkF:							
Schaffenaker	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	None	---	---
SnE:							
Schaffenaker	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Vanderlip	Bedrock (lithic)	96-120	---	Indurated	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
SnF:							
Schaffenaker	Bedrock (lithic)	20-40	---	Indurated	Low	Low	High
Vanderlip	Bedrock (lithic)	96-120	---	Indurated	Low	Low	High
SxC:							
Sideling	Bedrock (paralithic)	60-96	---	Very strongly cemented	Moderate	High	Moderate
SxE:							
Sideling	Bedrock (paralithic)	60-96	---	Very strongly cemented	Moderate	High	Moderate
SyE:							
Sideling	Bedrock (paralithic)	60-96	---	Very strongly cemented	Moderate	High	Moderate
Ta:							
Tioga	---	---	---	---	Moderate	Low	Moderate
TyA:							
Tygart	---	---	---	---	Moderate	High	High
Ua:							
Udorthents	---	---	---	---	---	---	---
Uu:							
Urban land	---	---	---	---	---	---	---
Udorthents	---	---	---	---	---	---	---
WaB:							
Weikert	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	Moderate
WaC:							
Weikert	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	Moderate
WbC:							
Weikert	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	Moderate
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In				
WbD:							
Weikert	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	Moderate
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High
WkF:							
Weikert	Bedrock (paralithic)	10-20	---	Very strongly cemented	Moderate	Moderate	Moderate
Berks	Bedrock (paralithic)	20-40	---	Very strongly cemented	Low	Low	High

Table 21.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
AgB:									
Allegheny	B	Jan-Dec	---	---	---	---	None	---	None
AgC:									
Allegheny	B	Jan-Dec	---	---	---	---	None	---	None
AnB:									
Andover	D								
		January	0.0-0.5	1.3-2.3	---	---	None	---	None
		February	0.0-0.5	1.3-2.3	---	---	None	---	None
		March	0.0-0.5	1.3-2.3	---	---	None	---	None
		April	0.0-0.5	1.3-2.3	---	---	None	---	None
		May	0.3-1.0	1.3-2.3	---	---	None	---	None
		June	1.0-1.2	1.3-2.3	---	---	None	---	None
		October	0.3-1.0	1.3-2.3	---	---	None	---	None
		November	0.0-0.5	1.3-2.3	---	---	None	---	None
		December	0.0-0.5	1.3-2.3	---	---	None	---	None
Ba:									
Basher	B								
		January	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		February	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		March	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
		April	2.0-3.0	>6.0	---	---	None	Very brief	Occasional
		May	3.0-4.0	>6.0	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	---	---	---	---	None	Very brief	Rare
		September	---	---	---	---	None	Very brief	Rare
		October	---	---	---	---	None	Very brief	Rare
		November	3.0-4.0	>6.0	---	---	None	Very brief	Occasional
		December	1.5-2.0	>6.0	---	---	None	Very brief	Occasional
BbC:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None
BbE:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None
BcD:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
BcD:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
BcE:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
BcF:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
BeB:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None
Clearbrook	D								
		January	1.0-2.5	1.7-3.3	---	---	None	---	None
		February	1.0-2.5	1.7-3.3	---	---	None	---	None
		March	1.0-2.5	1.7-3.3	---	---	None	---	None
		April	1.3-2.5	1.7-3.3	---	---	None	---	None
		November	1.3-2.5	1.7-3.3	---	---	None	---	None
		December	1.0-2.5	1.7-3.3	---	---	None	---	None
BeC:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None
Clearbrook	D								
		January	1.0-2.5	1.7-3.3	---	---	None	---	None
		February	1.0-2.5	1.7-3.3	---	---	None	---	None
		March	1.0-2.5	1.7-3.3	---	---	None	---	None
		April	1.3-2.5	1.7-3.3	---	---	None	---	None
		November	1.3-2.5	1.7-3.3	---	---	None	---	None
		December	1.0-2.5	1.7-3.3	---	---	None	---	None
BkB:									
Berks	C	Jan-Dec	---	---	---	---	None	---	None
Weikert	C	Jan-Dec	---	---	---	---	None	---	None
BqF:									
Blackthorn	B	Jan-Dec	---	---	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
BrB:									
Brinkerton----------------	D								
		January	0.0-0.5	1.2-2.5	---	---	None	---	None
		February	0.0-0.5	1.2-2.5	---	---	None	---	None
		March	0.0-0.5	1.2-2.5	---	---	None	---	None
		April	0.0-0.5	1.2-2.5	---	---	None	---	None
		May	0.3-1.0	1.2-2.5	---	---	None	---	None
		October	0.3-1.0	1.2-2.5	---	---	None	---	None
		November	0.0-0.5	1.2-2.5	---	---	None	---	None
		December	0.0-0.5	1.2-2.5	---	---	None	---	None
BuB:									
Buchanan------------------	C								
		January	1.3-2.5	1.7-3.0	---	---	None	---	None
		February	1.3-2.5	1.7-3.0	---	---	None	---	None
		March	1.3-2.5	1.7-3.0	---	---	None	---	None
		April	1.3-2.5	1.7-3.0	---	---	None	---	None
		November	1.3-2.5	1.7-3.0	---	---	None	---	None
		December	1.3-2.5	1.7-3.0	---	---	None	---	None
BuC:									
Buchanan------------------	C								
		January	1.3-2.5	1.7-3.0	---	---	None	---	None
		February	1.3-2.5	1.7-3.0	---	---	None	---	None
		March	1.3-2.5	1.7-3.0	---	---	None	---	None
		April	1.3-2.5	1.7-3.0	---	---	None	---	None
		November	1.3-2.5	1.7-3.0	---	---	None	---	None
		December	1.3-2.5	1.7-3.0	---	---	None	---	None
BxC:									
Buchanan------------------	C								
		January	1.3-2.5	1.7-3.0	---	---	None	---	None
		February	1.3-2.5	1.7-3.0	---	---	None	---	None
		March	1.3-2.5	1.7-3.0	---	---	None	---	None
		April	1.3-2.5	1.7-3.0	---	---	None	---	None
		November	1.3-2.5	1.7-3.0	---	---	None	---	None
		December	1.3-2.5	1.7-3.0	---	---	None	---	None
BxE:									
Buchanan------------------	C								
		January	1.3-2.5	1.7-3.0	---	---	None	---	None
		February	1.3-2.5	1.7-3.0	---	---	None	---	None
		March	1.3-2.5	1.7-3.0	---	---	None	---	None
		April	1.3-2.5	1.7-3.0	---	---	None	---	None
		November	1.3-2.5	1.7-3.0	---	---	None	---	None
		December	1.3-2.5	1.7-3.0	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
CbB:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
Berks	C	Jan-Dec	---	---	---	---	None	---	None
CbC:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
Berks	C	Jan-Dec	---	---	---	---	None	---	None
CkB:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
Klinesville	C	Jan-Dec	---	---	---	---	None	---	None
CkC:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
Klinesville	C	Jan-Dec	---	---	---	---	None	---	None
CkD:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
Klinesville	C	Jan-Dec	---	---	---	---	None	---	None
CkE:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
Klinesville	C	Jan-Dec	---	---	---	---	None	---	None
CkF:									
Calvin	C	Jan-Dec	---	---	---	---	None	---	None
Klinesville	C	Jan-Dec	---	---	---	---	None	---	None
ClC:									
Caneyville	C	Jan-Dec	---	---	---	---	None	---	None
ClD:									
Caneyville	C	Jan-Dec	---	---	---	---	None	---	None
ClE:									
Caneyville	C	Jan-Dec	---	---	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
CnF:									
Caneyville----------------	C	Jan-Dec	---	---	---	---	None	---	None
CrB:									
Clarksburg----------------	C								
		January	1.5-2.5	1.7-3.0	---	---	None	---	None
		February	1.5-2.5	1.7-3.0	---	---	None	---	None
		March	1.5-2.5	1.7-3.0	---	---	None	---	None
		April	1.5-2.5	1.7-3.0	---	---	None	---	None
		November	1.5-2.5	1.7-3.0	---	---	None	---	None
		December	1.5-2.5	1.7-3.0	---	---	None	---	None
CrC:									
Clarksburg----------------	C								
		January	1.5-2.5	1.7-3.0	---	---	None	---	None
		February	1.5-2.5	1.7-3.0	---	---	None	---	None
		March	1.5-2.5	1.7-3.0	---	---	None	---	None
		April	1.5-2.5	1.7-3.0	---	---	None	---	None
		November	1.5-2.5	1.7-3.0	---	---	None	---	None
		December	1.5-2.5	1.7-3.0	---	---	None	---	None
CvB:									
Clearbrook----------------	D								
		January	0.5-1.5	1.7-3.3	---	---	None	---	None
		February	0.5-1.5	1.7-3.3	---	---	None	---	None
		March	0.5-1.5	1.7-3.3	---	---	None	---	None
		April	1.0-1.5	1.7-3.3	---	---	None	---	None
		May	1.3-1.8	1.7-3.3	---	---	None	---	None
		October	1.3-1.8	1.7-3.3	---	---	None	---	None
		November	1.0-1.5	1.7-3.3	---	---	None	---	None
		December	0.5-1.5	1.7-3.3	---	---	None	---	None
Cavode--------------------	C								
		January	0.5-1.5	3.3-6.0	---	---	None	---	None
		February	0.5-1.5	3.3-6.0	---	---	None	---	None
		March	0.5-1.5	3.3-6.0	---	---	None	---	None
		April	1.0-2.0	3.3-6.0	---	---	None	---	None
		May	1.5-2.0	3.3-6.0	---	---	None	---	None
		October	1.5-2.0	3.3-6.0	---	---	None	---	None
		November	1.0-2.0	3.3-6.0	---	---	None	---	None
		December	0.5-1.5	3.3-6.0	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
Cz:									
Combs	B								
		January	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		February	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		March	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		April	4.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Rare
		July	---	---	---	---	None	Brief	Rare
		August	---	---	---	---	None	Brief	Rare
		September	---	---	---	---	None	Brief	Rare
		October	---	---	---	---	None	Brief	Rare
		November	---	---	---	---	None	Brief	Occasional
		December	---	---	---	---	None	Brief	Occasional
DkC:									
Dekalb	B	Jan-Dec	---	---	---	---	None	---	None
DrE:									
Dekalb	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
DsB:									
Downsville	B	Jan-Dec	---	---	---	---	None	---	None
DsC:									
Downsville	B	Jan-Dec	---	---	---	---	None	---	None
Dz:									
Dunning	D								
		January	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Occasional
		February	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Occasional
		March	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Occasional
		April	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Occasional
		May	0.5-1.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		June	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Rare
		July	1.0-3.0	>6.0	0.1-0.5	Very brief	Rare	Brief	Rare
		August	1.0-3.0	>6.0	0.1-0.5	Very brief	Rare	Brief	Rare
		September	1.0-3.0	>6.0	0.1-0.5	Very brief	Rare	Brief	Rare
		October	0.5-1.0	>6.0	0.1-0.5	Brief	Rare	Brief	Rare
		November	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Occasional
		December	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Occasional

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
ErB:									
Ernest--------------------	C								
		January	1.0-2.7	1.7-3.0	---	---	None	---	None
		February	1.0-2.7	1.7-3.0	---	---	None	---	None
		March	1.0-2.7	1.7-3.0	---	---	None	---	None
		April	1.0-2.7	1.7-3.0	---	---	None	---	None
		November	1.0-2.7	1.7-3.0	---	---	None	---	None
		December	1.0-2.7	1.7-3.0	---	---	None	---	None
ErC:									
Ernest--------------------	C								
		January	1.0-2.7	1.7-3.0	---	---	None	---	None
		February	1.0-2.7	1.7-3.0	---	---	None	---	None
		March	1.0-2.7	1.7-3.0	---	---	None	---	None
		April	1.0-2.7	1.7-3.0	---	---	None	---	None
		November	1.0-2.7	1.7-3.0	---	---	None	---	None
		December	1.0-2.7	1.7-3.0	---	---	None	---	None
HaE:									
Hazleton------------------	B	Jan-Dec	---	---	---	---	None	---	None
Dekalb--------------------	B	Jan-Dec	---	---	---	---	None	---	None
HaF:									
Hazleton------------------	B	Jan-Dec	---	---	---	---	None	---	None
Dekalb--------------------	B	Jan-Dec	---	---	---	---	None	---	None
HdF:									
Hazleton------------------	A	Jan-Dec	---	---	---	---	None	---	None
Dekalb--------------------	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
HeF:									
Hazleton------------------	A	Jan-Dec	---	---	---	---	None	---	None
Dekalb--------------------	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
HlF:									
Hazleton------------------	B	Jan-Dec	---	---	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
HlF:									
Lehew	C	Jan-Dec	---	---	---	---	None	---	None
Dekalb	B	Jan-Dec	---	---	---	---	None	---	None
Ho:									
Holly	C/D								
		January	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		February	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		March	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		April	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		May	0.5-1.0	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		June	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		July	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		August	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		September	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		October	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		November	0.5-1.0	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		December	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
HwB:									
Hustontown	C								
		January	1.3-2.5	1.5-2.7	---	---	None	---	None
		February	1.3-2.5	1.5-2.7	---	---	None	---	None
		March	1.3-2.5	1.5-2.7	---	---	None	---	None
		April	1.3-2.5	1.5-2.7	---	---	None	---	None
		November	1.3-2.5	1.5-2.7	---	---	None	---	None
		December	1.3-2.5	1.5-2.7	---	---	None	---	None
Ln:									
Lindside	C								
		January	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Brief	Occasional
		May	2.5-3.5	>6.0	---	---	None	Brief	Rare
		June	3.0-5.0	>6.0	---	---	None	Brief	Rare
		July	3.0-5.0	>6.0	---	---	None	Brief	Rare
		August	3.0-5.0	>6.0	---	---	None	Brief	Rare
		September	3.0-5.0	>6.0	---	---	None	Brief	Rare
		October	3.0-5.0	>6.0	---	---	None	Brief	Rare
		November	2.5-3.5	>6.0	---	---	None	Brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Brief	Occasional

Table 21.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
LzC:									
Litz	C	Jan-Dec	---	---	---	---	None	---	None
LzD:									
Litz	C	Jan-Dec	---	---	---	---	None	---	None
LzE:									
Litz	C	Jan-Dec	---	---	---	---	None	---	None
LzF:									
Litz	C	Jan-Dec	---	---	---	---	None	---	None
Me:									
Melvin	B/D								
		January	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		February	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		March	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		April	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		May	0.5-1.0	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		June	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		July	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		August	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		September	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		October	1.0-3.0	>6.0	0.1-0.5	Brief	Rare	Brief	Occasional
		November	0.5-1.0	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
		December	0.0-0.5	>6.0	0.2-1.0	Long	Occasional	Brief	Frequent
MhA:									
Monongahela	C								
		January	1.3-2.3	1.5-2.5	---	---	None	---	None
		February	1.3-2.3	1.5-2.5	---	---	None	---	None
		March	1.3-2.3	1.5-2.5	---	---	None	---	None
		April	1.3-2.3	1.5-2.5	---	---	None	---	None
		November	1.3-2.3	1.5-2.5	---	---	None	---	None
		December	1.3-2.3	1.5-2.5	---	---	None	---	None
MhB:									
Monongahela	C								
		January	1.3-2.3	1.5-2.5	---	---	None	---	None
		February	1.3-2.3	1.5-2.5	---	---	None	---	None
		March	1.3-2.3	1.5-2.5	---	---	None	---	None
		April	1.3-2.3	1.5-2.5	---	---	None	---	None
		November	1.3-2.3	1.5-2.5	---	---	None	---	None
		December	1.3-2.3	1.5-2.5	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
MhC:									
Monongahela	C								
		January	1.3-2.3	1.5-2.5	---	---	None	---	None
		February	1.3-2.3	1.5-2.5	---	---	None	---	None
		March	1.3-2.3	1.5-2.5	---	---	None	---	None
		April	1.3-2.3	1.5-2.5	---	---	None	---	None
		November	1.3-2.3	1.5-2.5	---	---	None	---	None
		December	1.3-2.3	1.5-2.5	---	---	None	---	None
MrC:									
Murrill	B	Jan-Dec	---	---	---	---	None	---	None
MrD:									
Murrill	B	Jan-Dec	---	---	---	---	None	---	None
MsC:									
Murrill	B	Jan-Dec	---	---	---	---	None	---	None
MsE:									
Murrill	B	Jan-Dec	---	---	---	---	None	---	None
Pg:									
Philo	B								
		January	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		May	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		June	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		July	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		August	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		September	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		October	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		November	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Very brief	Occasional

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
Ph:									
Philo	B								
		January	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		February	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		March	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		April	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
		May	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		June	3.0-6.0	>6.0	---	---	None	Very brief	Rare
		July	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		August	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		September	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		October	4.0-6.0	>6.0	---	---	None	Very brief	Rare
		November	2.0-3.5	>6.0	---	---	None	Very brief	Occasional
		December	1.5-3.0	>6.0	---	---	None	Very brief	Occasional
Ps:									
Pope	B								
		January	3.5-6.0	>6.0	---	---	None	Very brief	Occasional
		February	3.5-6.0	>6.0	---	---	None	Very brief	Occasional
		March	3.5-6.0	>6.0	---	---	None	Very brief	Occasional
		April	4.5-6.0	>6.0	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	---	---	---	---	None	Very brief	Rare
		September	---	---	---	---	None	Very brief	Rare
		October	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Occasional
		December	---	---	---	---	None	Very brief	Occasional
Px:									
Pope	B								
		January	3.5-6.0	>6.0	---	---	None	Very brief	Occasional
		February	3.5-6.0	>6.0	---	---	None	Very brief	Occasional
		March	3.5-6.0	>6.0	---	---	None	Very brief	Occasional
		April	4.5-6.0	>6.0	---	---	None	Very brief	Occasional
		May	---	---	---	---	None	Very brief	Rare
		June	---	---	---	---	None	Very brief	Rare
		July	---	---	---	---	None	Very brief	Rare
		August	---	---	---	---	None	Very brief	Rare
		September	---	---	---	---	None	Very brief	Rare
		October	---	---	---	---	None	Very brief	Rare
		November	---	---	---	---	None	Very brief	Occasional
		December	---	---	---	---	None	Very brief	Occasional

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
Pz:									
Pope----------------------	B								
		January	3.0-5.0	>6.0	---	---	None	Extremely brief	Frequent
		February	3.0-5.0	>6.0	---	---	None	Extremely brief	Frequent
		March	3.0-5.0	>6.0	---	---	None	Extremely brief	Frequent
		April	3.0-5.0	>6.0	---	---	None	Extremely brief	Frequent
		May	4.0-6.0	>6.0	---	---	None	Extremely brief	Frequent
		June	---	---	---	---	None	Extremely brief	Frequent
		July	---	---	---	---	None	Extremely brief	Frequent
		August	---	---	---	---	None	Extremely brief	Frequent
		September	---	---	---	---	None	Extremely brief	Occasional
		October	4.0-6.0	>6.0	---	---	None	Extremely brief	Occasional
		November	3.0-5.0	>6.0	---	---	None	Extremely brief	Frequent
		December	3.0-5.0	>6.0	---	---	None	Extremely brief	Frequent
Philo---------------------	B								
		January	1.0-3.0	>6.0	---	---	None	Extremely brief	Frequent
		February	1.0-3.0	>6.0	---	---	None	Extremely brief	Frequent
		March	1.0-3.0	>6.0	---	---	None	Extremely brief	Frequent
		April	1.0-3.0	>6.0	---	---	None	Extremely brief	Frequent
		May	2.0-4.0	>6.0	---	---	None	Extremely brief	Frequent
		June	3.0-6.0	>6.0	---	---	None	Extremely brief	Occasional
		July	3.0-6.0	>6.0	---	---	None	Extremely brief	Occasional
		August	3.0-6.0	>6.0	---	---	None	Extremely brief	Occasional
		September	3.0-6.0	>6.0	---	---	None	Extremely brief	Occasional
		October	2.0-4.0	>6.0	---	---	None	Extremely brief	Occasional
		November	1.0-3.0	>6.0	---	---	None	Extremely brief	Frequent
		December	1.0-3.0	>6.0	---	---	None	Extremely brief	Frequent
Qm:									
Quarry, limestone.									
Qo:									
Quarry, sandstone.									
Qs:									
Quarry, shale.									
ReG:									
Rock outcrop.									
Opequon-------------------	C	Jan-Dec	---	---	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
RgG:									
Rock outcrop.									
Rough	D	Jan-Dec	---	---	---	---	None	---	None
RuD:									
Rushtown	A	Jan-Dec	---	---	---	---	None	---	None
RuF:									
Rushtown	A	Jan-Dec	---	---	---	---	None	---	None
ShC:									
Schaffenaker	A	Jan-Dec	---	---	---	---	None	---	None
SkF:									
Schaffenaker	A	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop.									
SnE:									
Schaffenaker	A	Jan-Dec	---	---	---	---	None	---	None
Vanderlip	A	Jan-Dec	---	---	---	---	None	---	None
SnF:									
Schaffenaker	A	Jan-Dec	---	---	---	---	None	---	None
Vanderlip	A	Jan-Dec	---	---	---	---	None	---	None
SxC:									
Sideling	C								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	2.5-3.5	>6.0	---	---	None	---	None
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	3.0-3.5	>6.0	---	---	None	---	None
		November	3.0-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
SxE:									
Sideling	C								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	2.5-3.5	>6.0	---	---	None	---	None
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	3.0-3.5	>6.0	---	---	None	---	None
		November	3.0-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
SyE:									
Sideling------------------	C								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	2.5-3.5	>6.0	---	---	None	---	None
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	3.0-3.5	>6.0	---	---	None	---	None
		November	3.0-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
Ta:									
Tioga---------------------	B								
		January	3.0-6.0	>6.0	---	---	None	Brief	Occasional
		February	3.0-6.0	>6.0	---	---	None	Brief	Occasional
		March	3.0-6.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	---	None	Brief	Occasional
		May	---	---	---	---	None	Brief	Occasional
		June	---	---	---	---	None	Brief	Rare
		July	---	---	---	---	None	Brief	Rare
		August	---	---	---	---	None	Brief	Rare
		September	---	---	---	---	None	Brief	Rare
		October	---	---	---	---	None	Brief	Occasional
		November	---	---	---	---	None	Brief	Occasional
		December	---	---	---	---	None	Brief	Occasional
TyA:									
Tygart--------------------	D								
		January	0.5-1.5	>6.0	---	---	None	---	None
		February	0.5-1.5	>6.0	---	---	None	---	None
		March	0.5-1.5	>6.0	---	---	None	---	None
		April	0.5-1.5	>6.0	---	---	None	---	None
		May	1.2-1.5	>6.0	---	---	None	---	None
		November	0.5-1.5	>6.0	---	---	None	---	None
		December	0.5-1.5	>6.0	---	---	None	---	None
Ua:									
Udorthents.									
Uu:									
Urban land.									
Udorthents.									
WaB:									
Weikert-------------------	C	Jan-Dec	---	---	---	---	None	---	None

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table: Upper limit	Water table: Lower limit	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft	Ft				
WaC:									
Weikert	C	Jan-Dec	---	---	---	---	None	---	None
WbC:									
Weikert	C	Jan-Dec	---	---	---	---	None	---	None
Berks	C	Jan-Dec	---	---	---	---	None	---	None
WbD:									
Weikert	C	Jan-Dec	---	---	---	---	None	---	None
Berks	C	Jan-Dec	---	---	---	---	None	---	None
WkF:									
Weikert	C	Jan-Dec	---	---	---	---	None	---	None
Berks	C	Jan-Dec	---	---	---	---	None	---	None

Table 22.--Classification of the Soils

Soil name	Family or higher taxonomic class
Allegheny	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Andover	Fine-loamy, mixed, active, mesic Typic Fragiaquults
Basher	Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts
Berks	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Blackthorn	Loamy-skeletal, mixed, semiactive, mesic Typic Hapludults
Brinkerton	Fine-silty, mixed, superactive, mesic Typic Fragiaqualfs
Buchanan	Fine-loamy, mixed, semiactive, mesic Aquic Fragiudults
Calvin	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Caneyville	Fine, mixed, active, mesic Typic Hapludalfs
Cavode	Fine, mixed, active, mesic Aeric Endoaquults
Clarksburg	Fine-loamy, mixed, superactive, mesic Oxyaquic Fragiudalfs
Clearbrook	Loamy-skeletal, mixed, active, mesic Aeric Epiaquults
Combs	Coarse-loamy, mixed, active, mesic Fluventic Hapludolls
Dekalb	Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts
Downsville	Loamy-skeletal, mixed, active, mesic Typic Paleudults
Dunning	Fine, mixed, active, mesic Fluvaquentic Endoaquolls
Ernest	Fine-loamy, mixed, superactive, mesic Aquic Fragiudults
Hazleton	Loamy-skeletal, siliceous, active, mesic Typic Dystrudepts
Holly	Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Hustontown	Fine-loamy, mixed, active, mesic Oxyaquic Fragiudalfs
Klinesville	Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts
Lehew	Loamy-skeletal, siliceous, semiactive, mesic Typic Dystrudepts
Lindside	Fine-silty, mixed, active, mesic Fluvaquentic Eutrudepts
Litz	Loamy-skeletal, mixed, active, mesic Ruptic-Ultic Dystrudepts
Melvin	Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Monongahela	Fine-loamy, mixed, semiactive, mesic Typic Fragiudults
Murrill	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Opequon	Clayey, mixed, active, mesic Lithic Hapludalfs
Philo	Coarse-loamy, mixed, active, mesic Fluvaquentic Dystrudepts
Pope	Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts
Rough	Loamy, mixed, active, acid, mesic Lithic Udorthents
Rushtown	Loamy-skeletal over fragmental, mixed, active, mesic Typic Dystrudepts
Schaffenaker	Mesic, coated Typic Quartzipsamments
Sideling	Fine-loamy, siliceous, semiactive, mesic Oxyaquic Hapludults
Tioga	Coarse-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts
Tygart	Fine, mixed, semiactive, mesic Aeric Endoaquults
Udorthents	Udorthents
Vanderlip	Mesic, coated Lamellic Quartzipsamments
Weikert	Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

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