United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Ohio Department of Natural Resources, Division of Soil and Water Conservation; Ohio Agricultural Research and Development Center; The Ohio State University Extension; Ross Soil and Water Conservation District; and Ross County Commissioners

Soil Survey of Ross County, Ohio

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.

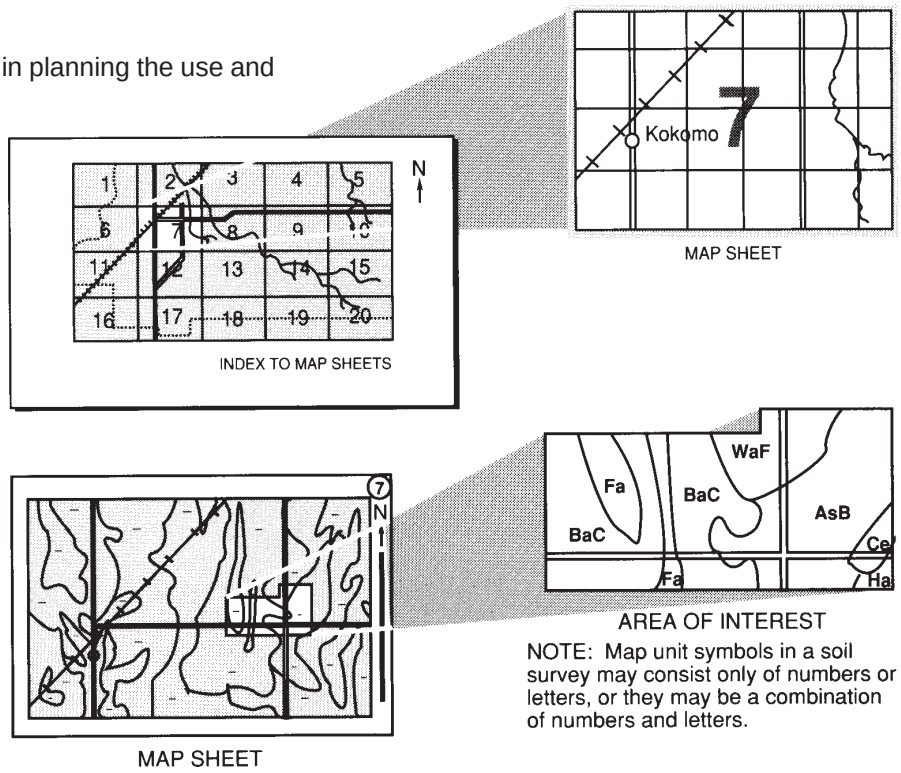
Detailed Soil Maps

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.

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

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



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.

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 1992. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1992. This survey was made cooperatively by the Natural Resources Conservation Service; the Ohio Department of Natural Resources, Division of Soil and Water Conservation; the Ohio Agricultural Research and Development Center; The Ohio State University Extension; the Ross Soil and Water Conservation District; and the Ross County Commissioners.

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

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Cover: The Scioto Valley is dominated by soils that formed in Wisconsinan outwash and till. Pictured are areas of Ockley, Eldean, and Mentor soils on forested slopes. Shelocta and Brownsville soils, which formed in colluvium, are on the steeper backslopes. Berk soils are on the ridgetops in the background.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

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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 shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, 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 Ohio State University Extension.

Kevin Brown
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Ross County, Ohio

By Stephen J. Hamilton and Terrence E. Lucht, Ohio Department of Natural Resources, Division of Soil and Water Conservation, and Gordon M. Gilmore and Doug B. Dotson, Natural Resources Conservation Service

Fieldwork by Gordon M. Gilmore, Robert J. Parkinson, Emden L. Milliron, and Danny D. Lemaster, Natural Resources Conservation Service, and Terrence E. Lucht and Stephen J. Hamilton, Ohio Department of Natural Resources, Division of Soil and Water Conservation

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
the Ohio Department of Natural Resources, Division of Soil and Water Conservation; the Ohio Agricultural Research and Development Center; The Ohio State University Extension; the Ross Soil and Water Conservation District; and the Ross County Commissioners

Ross County is in south-central Ohio (fig. 1). It is bordered by Pike County on the south, Highland and Fayette Counties on the west, Pickaway County on the north, Hocking and Vinton Counties on the east, and Jackson County on the southeast. The total land area of the county is 443,488 acres, or about 687 square miles.

In 1990, the population of Ross County was 69,330; of this total, 21,923 people lived in Chillicothe, the county seat (U.S. Department of Commerce, 1990). Other incorporated communities are Adelphi, Bainbridge, Clarksburg, Frankfort, Kingston, and South Salem.

Ross County is served by one railroad and by U.S. Highways 23, 35, and 50. State Routes 28, 104, 138, 159, 180, 207, and 772 also provide good access to parts of the county. A county airport is north of Chillicothe.

Ross County has a diverse economy based upon farming and farm-related enterprises, manufacturing, and woodland products.

This soil survey updates the survey of Ross County published in 1967 (Petro and others, 1967). It provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the County

This section provides general information about Ross County. It describes history; bedrock geology; glacial geology; physiography, relief, and drainage; climate; and farming.

History

The survey area has been inhabited by various tribes, but of particular interest are the “Mound Builders,” who constructed hundreds of earthwork hills throughout this region of Ohio (fig. 2). The Adena and Hopewell tribes occupied the region from 800 B.C. until 500 A.D. They disappeared for no apparent reason around 700 A.D. and were replaced by the Cole Indians, a woodland tribe. The Cole Indians were supplanted by the Fort Ancient people, who were probably the ancestors of the Shawnees. The Shawnees, a highly migratory tribe of fierce warriors, were driven out by the powerful Iroquois in the mid 1600s. They returned to the region around 1740 and remained until the Treaty of Greenville (1795).

The city of Chillicothe was founded in 1796 by Nathanial Massie, a Virginia military district surveyor.

Figure 1.—Location of Ross County in Ohio.

The name “Chillicothe” is derived from the Shawnee Indian word meaning “principal town.” In 1800, the United States Congress designated Chillicothe the capital of the “Eastern Section” of the Northwest Territory. Chillicothe also served as the capital of Ohio until 1816, except during an interval from late 1809 to 1812, when the legislature met in Zanesville. In 1846, the capital was moved to Columbus.

Ross County, the sixth county formed from the old Northwest Territory, was created by a proclamation of Governor St. Clair on August 20, 1798. It is named for James Ross, who achieved fame during the Revolutionary War. Originally, the county was much larger than it is now; only ten counties made up the entire State of Ohio in 1801. Settlement of the county began west of the Scioto River, in an area that was part of the Virginia Military Lands and was surveyed by metes and bounds. The area east of the Scioto River, which was part of the Congress Lands and was surveyed by the rectangular system of land surveying, was settled somewhat later (Petro and others, 1967).

Since early in the 19th century, Chillicothe has been the major trading center for the area. Boats were built to carry surplus crops from Ross County to New Orleans via the Scioto, Ohio, and Mississippi Rivers. Construction of the Ohio and Erie Canal (1831) made Chillicothe a major canal port. The Marietta and Cincinnati Railroad was constructed through Chillicothe in 1852. Products manufactured in Chillicothe in the 19th century included paper, furniture, buggies, ratchet jacks, razor blades, knives, shears, and shoes. In 1890, Colonel Daniel Mead purchased a paper-making plant; this enterprise became the nationally known Mead Corporation. Other manufacturing in the Chillicothe area today includes semitrailer trucks, railroad cars, and industrial automobile springs.

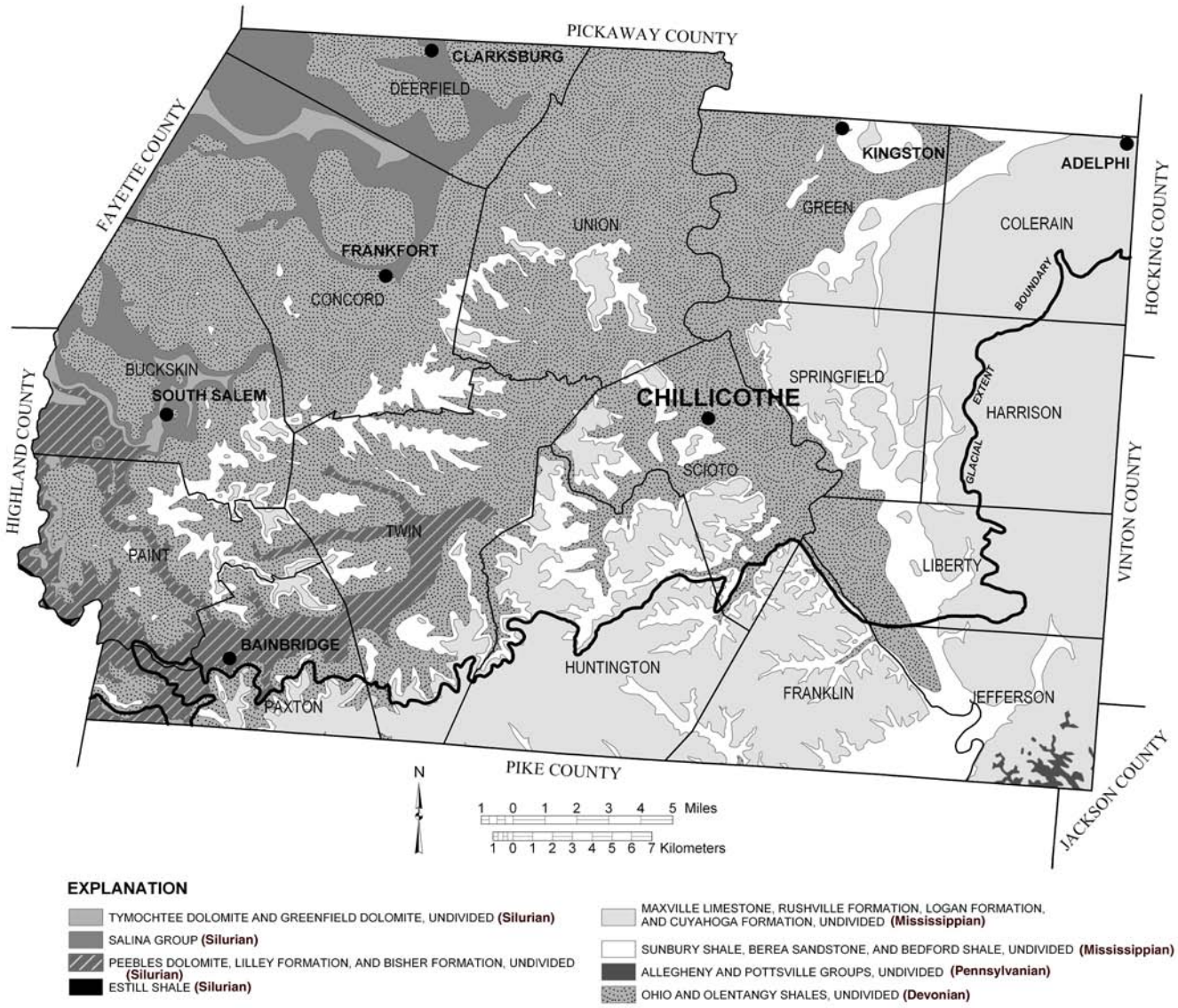
Bedrock Geology

Exposed bedrock in Ross County ranges from Silurian to Pennsylvanian in age (fig. 3). The upper Paleozoic strata generally dip east-southeast at approximately 30 feet per mile, forming part of the east limb of the Cincinnati Arch.

The oldest exposed bedrock is Silurian limestone and dolomite in the Paint Creek and Buckskin Creek valleys of western Ross County. Most of the county west of the Scioto River valley is underlain by Devonian shales and Mississippian shales and sandstones. The Mississippian Berea sandstone caps the outliers and uplands in the central and southern parts of western Ross County. East of the Scioto Valley, the Mississippian bedrock is a series of shales and thin sandstones that form the uplands. In small areas of northeastern and southeastern Ross County, the Pennsylvanian Sharon conglomerate caps the higher uplands.

Except for the south-central and southeastern parts, all of the county was covered by glaciers. In

Figure 2.—These mounds were built by the Adena and Hopewell people (800 B.C. to A.D. 500). The mounds are in an area of Eldean gravelly loam, 0 to 2 percent slopes.



Source: Slucher, E. R., chief compiler, and others, in prep., Bedrock geology of Ohio: Ohio Department of Natural Resources, Division of Geological Survey Map 1, scale 1:500,000.

Figure 3.—Bedrock geology of Ross County, Ohio.

glaciated areas the underlying bedrock has had little influence on most soils (Quinn, 1974; Stout and Lamb, 1938).

Glacial Geology

Several glaciations passed over parts of the county during the Pleistocene epoch. Generally, the ice sheets advanced from the north. These glaciated areas are covered by till of both the Wisconsinan and the Illinoian ages, and in some places the glacial material is as much as 100 feet thick.

The earlier glaciation, called the Illinoian, covered all but the south-central and southeastern parts of the county. At its most southerly extension, this glacier had sufficient thrust to override about half the area of the higher Allegheny Plateau.

Everywhere, except in the tongue of the Early Wisconsinan glacier in the Paint Valley, the outer boundary of Illinoian glaciation extends beyond the

limit of the Wisconsinan ice sheet. Southward through the Illinoian glaciated area, there are penetrations of both Wisconsinan and Illinoian outwash. Thus, the Illinoian glaciated area is a comparatively narrow belt between the Late Wisconsinan glacial boundary to the north and the unglaciated part of the county to the south. The widest part of the belt is in the Scioto River Valley (fig. 4).

Between the Illinoian and the Late Wisconsinan glaciations, the contact is exceptionally sharp, principally because the easily recognized escarpment of the Allegheny Plateau coincides in so many places with the late Wisconsinan outer boundary.

The Illinoian till drift on the uplands is patchy in distribution, probably because of the rough surface on which it was deposited and because of the relatively weak expression of the glacier near its lower margin. The till drift is thickest in the valleys, but it is sufficiently thick on most of the ridgetops, especially the flat-topped ridgetops. It is missing or is extremely thin on most of the steep side slopes of bedrock hills, and the glacier apparently bypassed a few of the highest points. In contrast, the broadly rolling area between Indian Creek and Paint Creek is covered more deeply with till drift than any other part of the county.

Unweathered Illinoian till drift on uplands is calcareous, except in local areas where it is thin over acid shale or sandstone. The till drift is generally loam and, compared with Illinoian till in the eastern and northeastern parts of the county, is more clayey, is less sandy, and contains more free carbonates.

Glacial terraces of Illinoian age occur in many areas of Ross County. These terraces are underlain by calcareous sand and gravel. They are dissected remnants of material that once filled the valleys and was much more extensive than it is now. This material

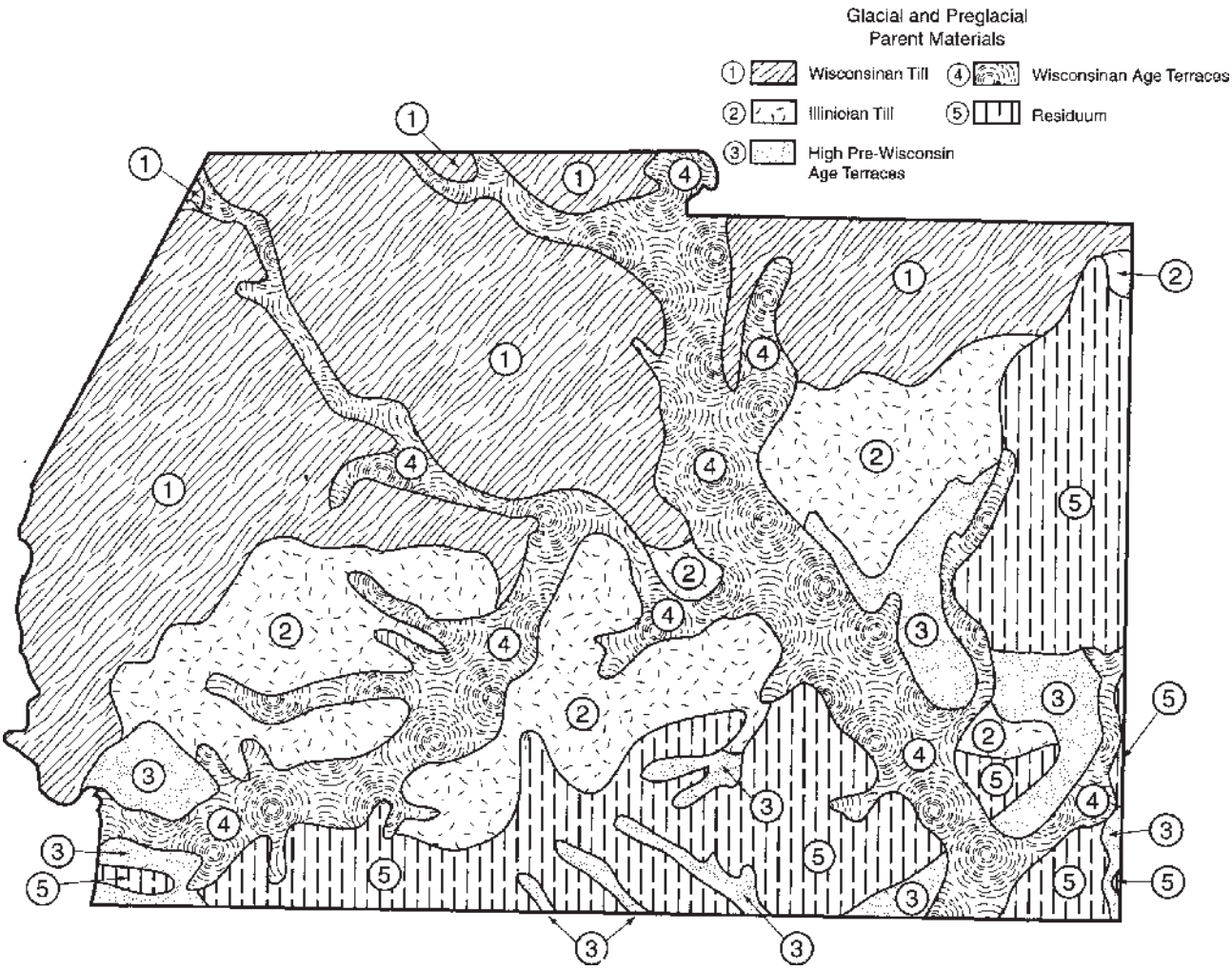


Figure 4.—The general location and extent of glacial parent materials in Ross County, Ohio.

was deposited by streams flowing from the Illinoian ice sheet. The most important area of glacial terraces is in the old preglacial Teays Valley southeast of Chillicothe.

Glacial materials of Wisconsinan age cover the northern one-third to one-half of the county. All of the Late Wisconsinan till drift is calcareous, even that on the Allegheny Plateau, except in small areas where the till drift is thin over bedrock. In the Paint Creek valley is an area, thought to be of Early Wisconsinan age, in which the glacial till contains a significant amount of acid shale and sandstone.

In most places the Wisconsinan glaciation terminates as the outstanding Cuba end moraine. Except where the glacier overrode the Allegheny Plateau, the moraine abuts the steep Illinoian glaciated hills along the plateau escarpment. Two other moraines of Late Wisconsinan age occur in the county—the Reesville and Bloomingburg moraines.

Gravelly and sandy outwash of Wisconsinan age is most extensive in the valleys of the Scioto River and Paint Creek. Here, the outwash is in relatively thick, stratified deposits consisting of highly calcareous gravel and sand.

Lacustrine deposits of Wisconsinan age occur both within the Wisconsinan glacial area and south of it. These deposits are mostly calcareous silt, but in some minor lenses they are sand and silty clay loam. They are in areas of old glacial lakes that formed during the Late Wisconsinan.

Covering many areas of the county is loess that originated during the Wisconsinan glaciation or in the postglacial period. This material is thickest in the higher areas west of the Scioto River, particularly on broad ridgetops. Little or no loess mantles the crests of knolls and the steeper side slopes (Goldthwait and others, 1961; Petro and others, 1967; Quinn, 1974; Stout and Lamb, 1938).

Physiography, Relief, and Drainage

Two distinct topographic provinces occur in Ross County. The northern one-third of the county consists of rolling plains and low hills of the glaciated portion of the Central Lowlands Province (Stout and Lamb, 1938; Stout and others, 1943; Thornbury, 1969). Streams in the lowland area flow in broad shallow valleys. The central and southern parts of Ross County rise 200 to 300 feet above the lowlands and are included in the Appalachian Plateau Province (Stout and Lamb, 1938; Stout and others, 1943; Thornbury, 1969). This region is hilly and characterized by streams that flow in deep narrow valleys. The north-facing bedrock escarpment that separates these two physiographic provinces trends from northeast to southwest across central Ross County.

The county is drained by the southward-flowing Scioto River and its tributaries (fig. 5). The principal tributaries draining western Ross County are Deer Creek, Paint Creek (and its tributary North Fork), Indian Creek, and Stoney Creek. Major streams draining the eastern part of Ross County are Kinnikinnick Creek, Walnut Creek, and Salt Creek.

The maximum elevation in Ross County is 1,342 feet on Horseback Knob, 1.8 miles northeast of Summithill in Huntington Township. The lowest elevation, 559 feet, is along the Scioto River on the Ross County-Pike County boundary (Stout and Lamb, 1938; Stout and others, 1943; Thornbury, 1969).

Prior to the glacial period, the survey area was drained by the Teays drainage system, which consisted of the principal Teays River and all the tributaries that fed it from Ohio, Kentucky, and West Virginia (Goldthwait and others, 1961; Hansen, 1987; Quinn, 1974; Stout and Lamb, 1938; Stout and others, 1943; Thornbury, 1969).

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Waverly, Ohio, in the period 1961 to 1990. Waverly is in Pike County but is the climate data station closest to Ross County. 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 31.3 degrees F and the average daily minimum temperature is 20.9 degrees. The lowest temperature on record, which occurred on January 19, 1994, is -31 degrees. In summer, the average temperature is 72.3 degrees and the average daily maximum temperature is 84.5 degrees. The highest recorded temperature, which occurred on July 30, 1940, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is 38.78 inches. Of this total, 18.5 inches, or about 48 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was

Figure 5.—Flooding in the Scioto River Valley in an area of Gessie soils.

7.16 inches on July 16, 1961. Thunderstorms occur on about 41 days each year, and most occur between May and August.

The average seasonal snowfall is 17 inches. The greatest snow depth at any one time during the period of record was 19 inches. On the average, 13 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 59 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 60 percent of the time possible in summer and 36 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 10 miles per hour, from December to April.

Farming

In 1992, about 57 percent of the land in Ross County was used for farming (Carter and Evans, 1983; Ramey and others, 1993; USDA, 1984; USDA/SCS, 1987). The number of farms in the county was 780 (Carter and Evans, 1983; Ramey and others, 1993; USDA, 1984). The leading source of farm income is cash grain crops, including corn and soybeans (fig. 6). Other grain crops and livestock are also raised in the county (Boyne, 1979).

Most of the cropland is on the terraces along the Scioto River and on the flood plains along Paint Creek in the western part of the county and on the till plains in the northern part of the county.

The acreage of farmland in Ross County has decreased in recent years as more land is converted to urban uses. The well developed road system connected to the nearby rapidly growing metropolitan area has accelerated the conversion of farmland to urban land. Also, the readily available drinking water and extensive areas of soils suitable for building sites have contributed to the pressure for the conversion of agricultural land to urban land. Thirty-eight percent of Ross County is wooded (Dennis and Birch, 1981). This resource provides quality hardwood lumber, pulpwood, cordwood, and wildlife habitat.

Most of the productive land in Ross County is well drained or moderately well drained. Drainage and erosion control are management concerns affecting farming and in many areas used for other purposes. Flooding is a serious management concern in areas on flood plains, and artificial drainage is needed in areas of wet soils.

How This Survey Was Made

This survey was made to provide updated 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

Figure 6.—The corn in the foreground is in an area of Miamian silt loam, 2 to 6 percent slopes. The wheat in the background is in an area of Kendallville-Eldean complex, 6 to 12 percent slopes, eroded. The forested hills in the distance are in an area of Shelocta-Brownsville association, very steep.

the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

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

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

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

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

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

Survey Procedures

This survey is an update of the soil survey of Ross County published in 1967 (Petro and others, 1967). In 1984, at the request of the Ross County Commissioners, an evaluation of the 1967 survey was undertaken. Several areas were identified for modernization. Modernization activities included updating and expanding the interpretive tables, recorrelating the survey, updating soil classifications, and remapping approximately 115,000 acres.

The evaluation verified the accuracy of the majority of the line work. Primarily, these lines were used as a basis in producing the new maps. Transects were made to determine the validity of the map unit

composition before these lines were transferred to the new photo base. In most cases no adjustments or only minor adjustments to soil lines were required.

The general procedures followed in making this survey are described in the National Soil Survey Handbook (USDA/NRCS) and the Soil Survey Manual (Soil Survey Division Staff, 1993) of the Natural Resources Conservation Service.

Before actual fieldwork began, preliminary boundaries of slopes and landforms were plotted stereoscopically in dissected woodland areas on aerial photographs flown in 1983 at a scale of 1:40,000 and enlarged to a scale of 1:15,840. USGS topographic maps at a scale of 1:24,000 were studied to relate land and image features.

Traverses were made on foot to examine the soils. In areas where the pattern of soils is very complex, such as areas of the Miamian-Celina-Crosby general soil map unit, spacing between traverses was as close as 200 yards. In areas where the land use is mainly woodland, such as areas of the Cruze-Shelocta-Brownsville general soil map unit, traverses were about one-half mile apart.

Traverses were made in different areas based on changes in use and management of the land. For example, a hillside would be separated from a swale and a gently sloping ridgetop from a very steep backslope. In most areas, soil examinations along the traverses were made 50 to 800 yards apart, depending on the landscape and soil patterns. Observations of such items as landforms, uprooted trees, vegetation, roadbanks, and animal burrows were made continuously without regard to spacing. Soil boundaries were determined on the basis of soil examinations, observations, and photo interpretation. The soil material was examined with the aid of a hand auger or spade to a depth of about 80 inches or to bedrock if the bedrock was at a depth of less than 80 inches. The pedons described as typical were observed and studied in pits that were dug with shovels, mattocks, and digging bars to a depth of 80 inches or more.

Soil mapping changes were recorded on the field sheets from the 1967 soil survey. The drainageways were mapped in the field and from the old field sheets. Cultural features were recorded from visual observations and topographic maps.

At the beginning of the survey, sample areas were selected to represent the major landscapes in the county. Detailed notes from these representative sample areas were used to complete map unit descriptions.

Transects were made to determine the composition of the general soil map units. Soil examinations were made along the transects about 50 to 100 yards apart. The transects on side slopes were made from footslopes to ridgetops, and then a transect was typically made along the ridgetops. These transects were about one-half mile apart.

Samples for chemical analysis, physical analysis, and analyses of engineering properties were taken from representative sites of several of the soils in the survey area. The chemical and physical analyses were made by the Soil Characterization Laboratory, School of Natural Resources, The Ohio State University, Columbus, Ohio. The results of the analyses are stored in a computerized data file at the laboratory. The analyses for engineering properties were made by the Ohio Department of Transportation, Division of Highways, Bureau of Testing, Soils and Foundation Section, Columbus, Ohio. The laboratory procedures can be obtained by request from these respective laboratories. The results of laboratory analyses can be obtained from the Soil Characterization Laboratory, School of Natural Resources, The Ohio State University, Columbus, Ohio; the Ohio Department of Natural Resources, Division of Soil and Water Conservation, Columbus, Ohio; and the Natural Resources Conservation Service, State Office, Columbus, Ohio.

After field activities were completed, the soil information was transferred to a set of 1983 photo-base maps in the form of half-tone film positives.

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. Cruze-Shelocta-Brownsville

Setting

Landform: Hills
Position on the landform: Backslopes, shoulders, and footslopes
Slope range: 6 to 70 percent

Composition

Extent of the map unit in the county: 19 percent
Extent of the soils in the map unit:
Cruze soils—55 percent
Shelocta soils—15 percent
Brownsville soils—10 percent
Soils of minor extent—20 percent

Soil Properties and Qualities

Cruze

Depth class: Deep
Drainage class: Moderately well drained
Position on the landform: Backslopes, shoulders, and footslopes
Parent material: Colluvium and residuum derived from shale
Texture of the surface layer: Silt loam
Slope class: Strongly sloping to steep
Permeability: Slow
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: High

Shelocta

Depth class: Deep
Drainage class: Well drained
Position on the landform: Backslopes and footslopes
Parent material: Colluvium derived from siltstone, shale, and sandstone
Texture of the surface layer: Silt loam
Slope class: Strongly sloping to very steep
Permeability: Moderate
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: Low

Brownsville

Depth class: Deep and very deep
Drainage class: Well drained
Position on the landform: Backslopes
Parent material: Colluvium and residuum derived from siltstone and very fine grained sandstone
Texture of the surface layer: Channery silt loam
Slope class: Steep or very steep
Permeability: Moderately rapid
Content of organic matter: Moderately low
Available water capacity: Low
Shrink-swell potential: Low

Soils of Minor Extent

- Berks
- Clifty
- Latham
- Skidmore

- Spargus
- Tarhollow
- Tilsit

Use and Management

Major uses: Mainly woodland and pasture; cropland on the wider ridgetops
Management concerns: Erosion, slope, and slippage
Management measures: Using proper stocking rates, constructing logging trails on the contour, keeping the pasture in good condition by following recommended practices

2. Cruze-Rossmoyne-Shelocta

Setting

Landform: Hills
Position on the landform: Summits, backslopes, shoulders, and footslopes
Slope range: 0 to 35 percent

Composition

Extent of the map unit in the county: 18 percent
Extent of the soils in the map unit (fig. 7):
Cruze soils—40 percent

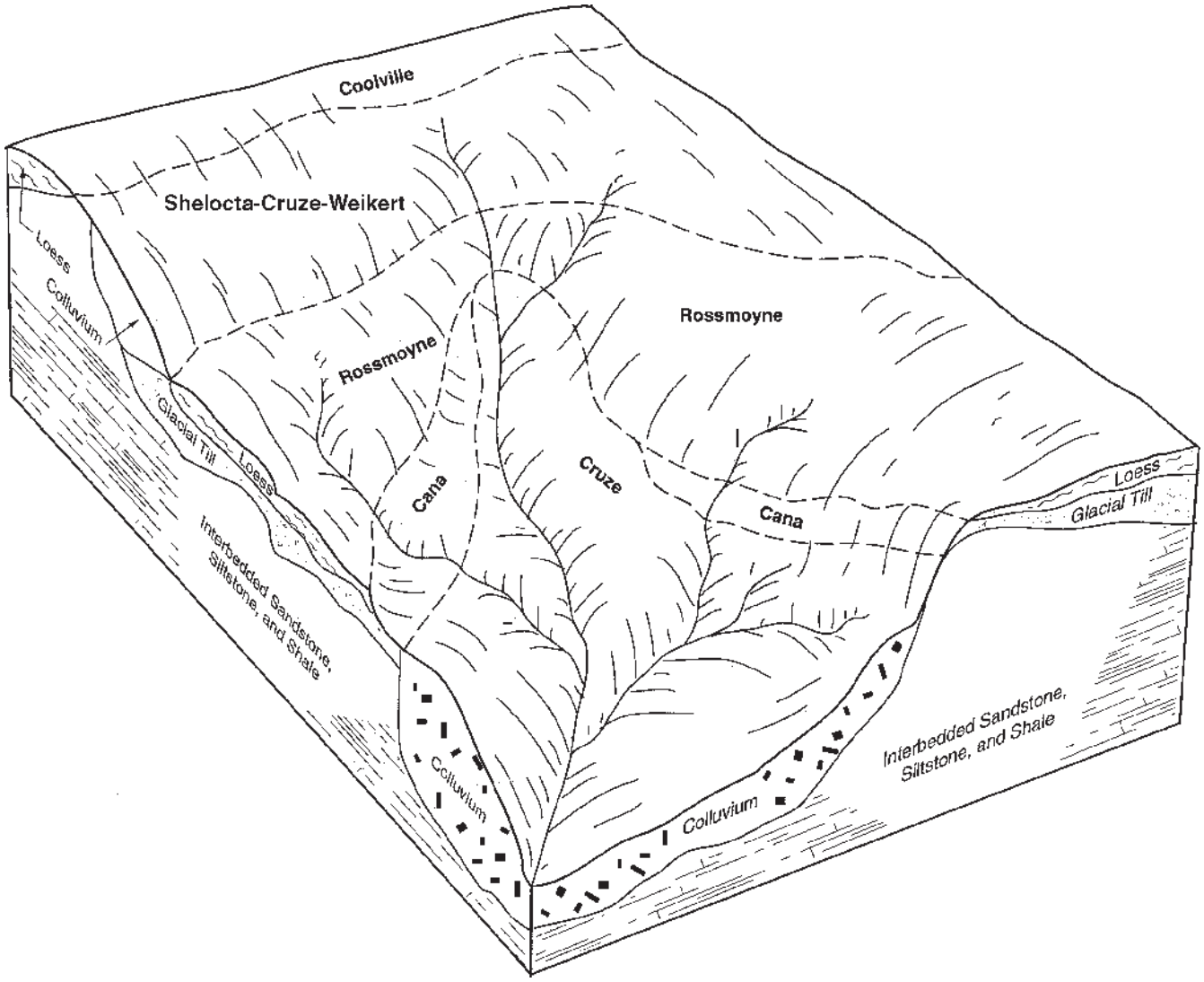


Figure 7.—Typical pattern of soils and parent material in the Cruze-Rossmoyne-Shelocta general soil map unit.

Rossmoyne soils—15 percent
Shelocta soils—15 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Cruze

Depth class: Deep
Drainage class: Moderately well drained
Position on the landform: Backslopes, shoulders, and footslopes
Parent material: Colluvium and residuum derived from shale
Texture of the surface layer: Silt loam
Slope class: Strongly sloping to steep
Permeability: Slow
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: High

Rossmoyne

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Summits and shoulders
Parent material: Loess over Illinoian till material
Texture of the surface layer: Silt loam
Slope class: Nearly level to strongly sloping
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Content of organic matter: Moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Shelocta

Depth class: Deep
Drainage class: Well drained
Position on the landform: Backslopes and footslopes
Parent material: Colluvium derived from siltstone, sandstone, and shale
Texture of the surface layer: Silt loam
Slope class: Moderately steep to very steep
Permeability: Moderate
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: Low

Soils of Minor Extent

- Avonburg
- Cana
- Coolville
- Clifty
- Negley
- Weikert

Use and Management

Major uses: Woodland and pasture
Management concerns: Erosion, slope, slippage, and restricted permeability
Management measures: Using proper stocking rates, constructing logging trails on the contour, keeping the pasture in good condition by following recommended practices

3. Cruze-Cana-Hickory

Setting

Landform: Hills
Position on the landform: Summits, backslopes, shoulders, and footslopes
Slope range: 2 to 35 percent

Composition

Extent of the map unit in the county: 1 percent
Extent of the soils in the map unit:
Cruze soils—35 percent
Cana soils—15 percent
Hickory soils—15 percent
Soils of minor extent—35 percent

Soil Properties and Qualities

Cruze

Depth class: Deep
Drainage class: Moderately well drained
Position on the landform: Backslopes, shoulders, and footslopes
Parent material: Colluvium and residuum derived from shale
Texture of the surface layer: Silt loam
Slope class: Strongly sloping to steep
Permeability: Slow
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: High

Cana

Depth class: Deep
Drainage class: Moderately well drained
Position on the landform: Summits, backslopes, footslopes, and shoulders
Parent material: Loess over Illinoian till material over clayey residuum
Texture of the surface layer: Silt loam
Slope class: Gently sloping to steep
Permeability: Moderate or moderately slow in the

upper part of the solum and slow in the lower part of the solum
Content of organic matter: Moderately low or moderate
Available water capacity: Moderate
Shrink-swell potential: Moderate

Hickory

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Backslopes and footslopes
Parent material: Illinoian till
Texture of the surface layer: Silt loam
Slope class: Strongly sloping to steep
Permeability: Moderate
Content of organic matter: Moderately low
Available water capacity: High
Shrink-swell potential: Moderate

Soils of Minor Extent

- Clifty
- Negley
- Shelocta
- Spargus

Use and Management

Major uses: Woodland and pasture
Management concerns: Erosion, slope, slippage, and restricted permeability
Management measures: Using proper stocking rates, constructing logging trails on the contour, keeping the pasture in good condition by following recommended practices

4. Miamian-Celina-Crosby

Setting

Landform: Till plains
Position on the landform: Slight rises, backslopes, shoulders, footslopes, and flats
Slope range: 0 to 35 percent

Composition

Extent of the map unit in the county: 16 percent
Extent of the soils in the map unit (fig. 8):
Miamian soils—50 percent
Celina soils—10 percent
Crosby soils—10 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Miamian

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Slight rises, backslopes, and shoulders
Parent material: Thin layer of loess over till
Texture of the surface layer: Silt loam
Slope class: Gently sloping to steep
Permeability: Moderately slow
Content of organic matter: Moderate or moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Celina

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Flats and slight rises
Parent material: Thin layer of loess over till
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Moderately slow
Content of organic matter: Moderate or moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Crosby

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Flats and slight rises
Parent material: Till
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Slow
Content of organic matter: Moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Soils of Minor Extent

- Cana
- Gessie
- Kendallville
- Kinn
- Kokomo

Use and Management

Major uses: Cropland
Management concerns: Erosion, slope, seasonal wetness, and restricted permeability

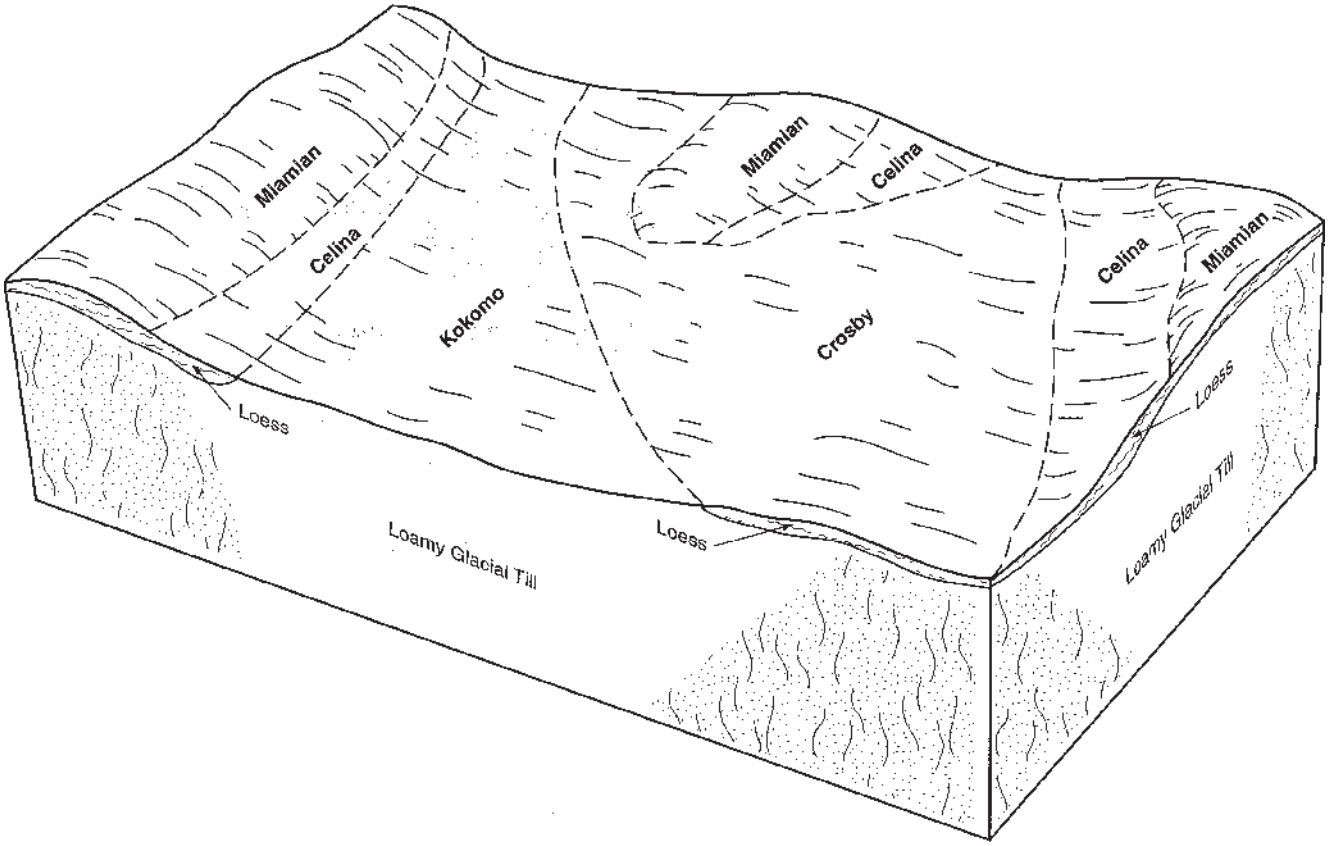


Figure 8.—Typical pattern of soils and parent material in the Miamian-Celina-Crosby general soil map unit.

Management measures: Conservation tillage and crop residue management, construction and maintenance of grassed waterways, maintenance and improvement of drainage systems

5. Crosby-Kokomo-Miamian

Setting

Landform: Till plains
Position on the landform: Depressions, slight rises, shoulders, and flats
Slope range: 0 to 12 percent

Composition

Extent of the map unit in the county: 10 percent
Extent of the soils in the map unit (fig. 9):
Crosby soils—40 percent
Kokomo soils—25 percent
Miamian soils—15 percent
Soils of minor extent—20 percent

Soil Properties and Qualities

Crosby

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Flats and slight rises
Parent material: Till
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Slow
Content of organic matter: Moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Kokomo

Depth class: Very deep

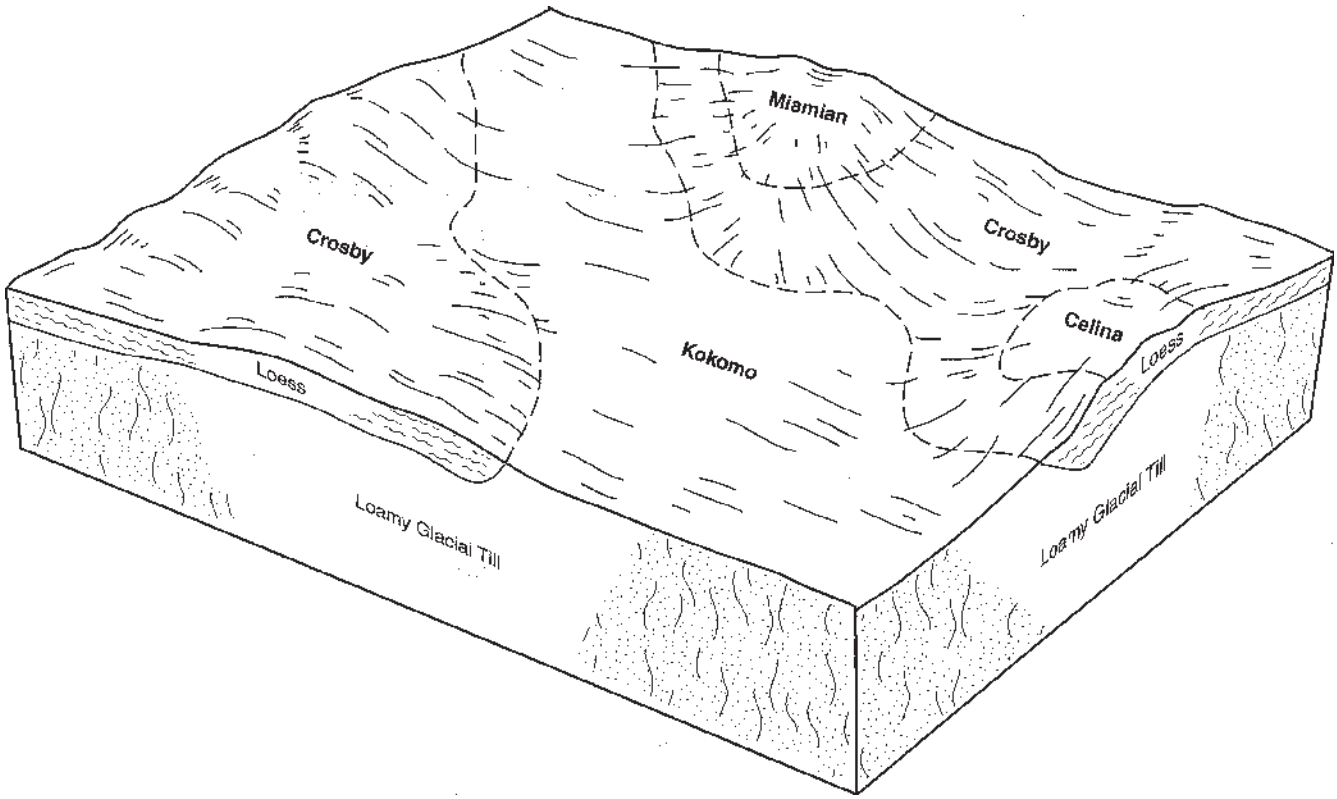


Figure 9.—Typical pattern of soils and parent material in the Crosby-Kokomo-Miamian general soil map unit.

Drainage class: Very poorly drained
Position on the landform: Flats and depressions
Parent material: Till
Texture of the surface layer: Silt loam and silty clay loam
Slope class: Nearly level
Permeability: Moderately slow
Content of organic matter: High
Available water capacity: High
Shrink-swell potential: Moderate

Miamian

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Slight rises, backslopes, and shoulders
Parent material: Thin layer of loess over till
Texture of the surface layer: Silt loam
Slope class: Gently sloping to steep
Permeability: Moderately slow
Content of organic matter: Moderate or moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Soils of Minor Extent

- Celina
- Kinn
- Patton
- Westland

Use and Management

Major use: Cropland
Management concerns: Erosion, slope, seasonal wetness, restricted permeability, and ponding
Management measures: Conservation tillage and residue management, construction and maintenance of grassed waterways, and maintenance and improvement of drainage systems

6. Miamian-Cana

Setting

Landform: Till plains
Position on the landform: Slight rises, backslopes, shoulders, footslopes, and summits
Slope range: 2 to 35 percent

Composition

Extent of the map unit in the county: 4 percent
Extent of the soils in the map unit:
Miamian soils—50 percent
Cana soils—25 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Miamian

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Slight rises, backslopes, and shoulders
Parent material: Thin layer of loess over till
Texture of the surface layer: Silt loam
Slope class: Gently sloping to steep
Permeability: Moderately slow
Content of organic matter: Moderate and moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Cana

Depth class: Deep
Drainage class: Moderately well drained
Position on the landform: Summits, backslopes, footslopes, and shoulders
Parent material: Loess over Illinoian till material over clayey residuum
Texture of the surface layer: Silt loam
Slope class: Gently sloping to steep
Permeability: Moderate or moderately slow in the upper part of the solum and slow in the lower part of the solum
Content of organic matter: Moderately low or moderate
Available water capacity: Moderate
Shrink-swell potential: Moderate

Soils of Minor Extent

- Crosby
- Kokomo
- Shelocta
- Weikert

Use and Management

Major use: Cropland
Management concerns: Erosion, slope, seasonal wetness, and restricted permeability
Management measures: Conservation tillage and residue management, construction and maintenance of grassed waterways, and maintenance and improvement of drainage systems

7. Kendallville-Miamian-Eldean

Setting

Landform: Till plains and terraces
Position on the landform: Slight rises, backslopes, shoulders, treads, and risers
Slope range: 0 to 35 percent

Composition

Extent of the map unit in the county: 4 percent
Extent of the soils in the map unit:
Kendallville soils—35 percent
Miamian soils—30 percent
Eldean soils—10 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Kendallville

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Slight rises, backslopes, footslopes, and shoulders
Parent material: Thin layer of loess over outwash material over till material
Texture of the surface layer: Silt loam
Slope class: Nearly level to steep
Permeability: Moderate in the solum and moderately slow in the substratum
Content of organic matter: Moderate or moderately low
Available water capacity: Moderate
Shrink-swell potential: Moderate

Miamian

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Slight rises, backslopes, and shoulders
Parent material: Thin layer of loess over till
Texture of the surface layer: Silt loam
Slope class: Gently sloping to steep
Permeability: Moderately slow
Content of organic matter: Moderate or moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Eldean

Depth class: Very deep

Drainage class: Well drained
Position on the landform: Treads and risers
Parent material: Outwash
Texture of the surface layer: Loam
Slope class: Nearly level to steep
Permeability: Moderate in the solum and rapid in the substratum
Content of organic matter: Moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Soils of Minor Extent

- Crosby
- Kinn
- Rodman
- Westland

Use and Management

Major uses: Cropland and pasture
Management concerns: Erosion, slope, seepage, and restricted permeability
Management measures: Conservation tillage and residue management, construction and maintenance of grassed waterways

8. Alexandria-Markland-Clifty

Setting

Landform: Till plains, terraces, and flood plains
Position on the landform: Backslopes, footslopes, shoulders, treads, and risers
Slope range: 0 to 35 percent

Composition

Extent of the map unit in the county: 3 percent
Extent of the soils in the map unit:
Alexandria soils—40 percent
Markland soils—15 percent
Clifty soils—10 percent
Soils of minor extent—35 percent

Soil Properties and Qualities

Alexandria

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Backslopes, footslopes, and shoulders
Parent material: Till
Texture of the surface layer: Silt loam
Slope class: Strongly sloping to steep
Permeability: Moderately slow
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: Moderate

Markland

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Backslopes, treads, and risers
Parent material: Thin layer of loess over stratified lacustrine material
Texture of the surface layer: Silt loam and silty clay loam
Slope class: Gently sloping to steep
Permeability: Moderately slow
Content of organic matter: Moderate
Available water capacity: High
Shrink-swell potential: High

Clifty

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Flood plains
Parent material: Loamy alluvium
Texture of the surface layer: Silt loam
Slope class: Nearly level
Permeability: Moderately rapid
Content of organic matter: Moderate
Available water capacity: Moderate
Shrink-swell potential: Low

Soils of Minor Extent

- Cruze
- Fitchville
- Negley
- Shelocta
- Spargus

Use and Management

Major uses: Pasture and woodland
Management concerns: Erosion, flooding, slope, seasonal wetness, and restricted permeability
Management measures: Conservation tillage and residue management, construction and maintenance of grassed waterways and grade-changing structures, maintenance and improvement of drainage systems

9. Gessie-Eldean-Ross

Setting

Landform: Flood plains and terraces
Position on the landform: Flood plains, treads, and risers
Slope range: 0 to 12 percent

Composition

Extent of the map unit in the county: 14 percent
Extent of the soils in the map unit:
Gessie soils—30 percent
Eldean soils—25 percent
Ross soils—15 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Gessie

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Flood plains
Parent material: Alluvium
Texture of the surface layer: Silt loam
Slope class: Nearly level
Permeability: Moderate
Content of organic matter: Moderately low
Available water capacity: High
Shrink-swell potential: Low

Eldean

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Treads and risers
Parent material: Outwash
Texture of the surface layer: Loam and gravelly loam
Slope class: Nearly level to steep
Permeability: Moderate in the solum and rapid in the substratum
Content of organic matter: Moderate or moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Ross

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Flood plains
Parent material: Loamy alluvium
Texture of the surface layer: Silt loam
Slope class: Nearly level
Permeability: Moderate
Content of organic matter: High
Available water capacity: High
Shrink-swell potential: Low

Soils of Minor Extent

- Mentor
- Ockley
- Rodman
- Shelocta
- Sloan

Use and Management

Major use: Cropland
Management concerns: Flooding, erosion, and seepage
Management measures: Conservation tillage and residue management, construction and maintenance of grassed waterways

10. Haymond-Cidermill-Fitchville

Setting

Landform: Flood plains and terraces
Position on the landform: Nearly level flood plains and nearly level and gently sloping treads
Slope range: 0 to 6 percent

Composition

Extent of the map unit in the county: 2 percent
Extent of the soils in the map unit:
Haymond soils—40 percent
Cidermill soils—35 percent
Fitchville soils—15 percent
Soils of minor extent—10 percent

Soil Properties and Qualities

Haymond

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Flood plains
Parent material: Silty alluvium
Texture of the surface layer: Silt loam
Slope class: Nearly level
Permeability: Moderate
Content of organic matter: Moderately low
Available water capacity: Very high
Shrink-swell potential: Low

Cidermill

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Treads
Parent material: Silty and loamy alluvium over outwash material
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Moderate in the solum and rapid in the substratum
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: Low

Fitchville

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Treads
Parent material: Silty glaciolacustrine deposits
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Moderately slow
Content of organic matter: Moderate
Available water capacity: High
Shrink-swell potential: Moderate

Soils of Minor Extent

- Chavies
- Euclid
- Negley
- Ockley
- Tioga

Use and Management

Major use: Cropland
Management concerns: Flooding, erosion, seasonal wetness, and restricted permeability.
Management measures: Conservation tillage and residue management, maintenance and improvement of drainage systems

11. Tioga-Cidermill-Fitchville

Setting

Landform: Flood plains and terraces
Position on the landform: Nearly level flood plains and nearly level and gently sloping treads
Slope range: 0 to 6 percent

Composition

Extent of the map unit in the county: 1 percent
Extent of the soils in the map unit:
Tioga soils—35 percent
Cidermill soils—20 percent
Fitchville soils—15 percent
Soils of minor extent—30 percent

Soil Properties and Qualities

Tioga

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Flood plains
Parent material: Loamy alluvium
Texture of the surface layer: Fine sandy loam
Slope class: Nearly level
Permeability: Moderately rapid
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: Low

Cidermill

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Treads
Parent material: Silty and loamy alluvium over outwash material
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Moderate in the solum and rapid in the substratum
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: Low

Fitchville

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Treads
Parent material: Silty glaciolacustrine deposits
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Moderately slow
Content of organic matter: Moderate
Available water capacity: High
Shrink-swell potential: Moderate

Soils of Minor Extent

- Cana
- Clifty
- Haymond
- Negley

Use and Management

Major use: Cropland
Management concerns: Flooding, erosion, seasonal wetness, and restricted permeability
Management measures: Conservation tillage and residue management, maintenance and improvement of drainage systems

12. Patton

Setting

Landform: Glacial lakes (relict)
Position on the landform: Nearly level depressional flats
Slope range: 0 to 2 percent

Composition

Extent of the map unit in the county: 1 percent
Extent of the soils in the map unit:
Patton soils—80 percent
Soils of minor extent—20 percent

Soil Properties and Qualities

Patton

Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Depressional flats
Parent material: Silty glaciolacustrine sediments
Texture of the surface layer: Silty clay loam
Slope class: Nearly level
Permeability: Moderate
Content of organic matter: High
Available water capacity: High
Shrink-swell potential: Moderate

Soils of Minor Extent

- Adrian
- Carlisle
- Kendallville
- Kinn

Use and Management

Major use: Cropland
Management concerns: Seasonal wetness, ponding
Management measures: Conservation tillage and residue management, maintenance and improvement of drainage systems

13. Negley-Pike-Rainsboro

Setting

Landform: Illinoian outwash mantled with loess on high terraces
Position on the landform: Treads, backslopes, and risers
Slope range: 0 to 35 percent

Composition

Extent of the map unit in the county: 5 percent
Extent of the soils in the map unit:
Negley soils—30 percent
Pike soils—20 percent
Rainsboro soils—15 percent
Soils of minor extent—35 percent

Soil Properties and Qualities

Negley

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Risers and backslopes
Parent material: Illinoian outwash
Texture of the surface layer: Loam
Slope class: Strongly sloping to steep
Permeability: Moderately rapid
Content of organic matter: Moderately low
Available water capacity: Moderate
Shrink-swell potential: Low

Pike

Depth class: Very deep
Drainage class: Well drained
Position on the landform: Treads
Parent material: Loess over Illinoian outwash
Texture of the surface layer: Silt loam
Slope class: Nearly level and gently sloping
Permeability: Moderate
Content of organic matter: Low
Available water capacity: High
Shrink-swell potential: Low

Rainsboro

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Treads
Parent material: Loess over Illinoian outwash material
Texture of the surface layer: Silt loam
Slope class: Nearly level to strongly sloping
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Content of organic matter: Moderate or moderately low
Available water capacity: Low
Shrink-swell potential: Moderate

Soils of Minor Extent

- Libre
- Peoga
- Taggart
- Tioga

Use and Management

Major use: Cropland
Management concerns: Erosion, slope, seasonal wetness, and restricted permeability
Management measures: Conservation tillage and residue management, construction and maintenance of grassed waterways and grade-

changing structures, maintenance and improvement of drainage systems

14. Omulga-Wyatt-Tyler

Setting

Landform: Valley fill in abandoned preglacial drainage systems on the Allegheny Plateau
Position on the landform: Treads, backslopes, and risers
Slope range: 0 to 35 percent

Composition

Extent of the map unit in the county: 2 percent
Extent of the soils in the map unit:
Omulga soils—40 percent
Wyatt soils—20 percent
Tyler soils—15 percent
Soils of minor extent—25 percent

Soil Properties and Qualities

Omulga

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Treads and risers
Parent material: Loess, colluvium, or old alluvium underlain by lacustrine sediments in most areas
Texture of the surface layer: Silt loam
Slope class: Gently sloping to strongly sloping
Permeability: Moderate above the fragipan and slow in the fragipan
Content of organic matter: Low
Available water capacity: Low
Shrink-swell potential: Moderate

Wyatt

Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Treads, risers, and backslopes
Parent material: Loess over lacustrine sediments
Texture of the surface layer: Silt loam or silty clay loam
Slope class: Gently sloping to steep
Permeability: Slow or very slow
Content of organic matter: Moderately low or low
Available water capacity: Moderate
Shrink-swell potential: High

Tyler

Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Treads
Parent material: Silty alluvium and loess in valley fills
Texture of the surface layer: Silt loam
Slope class: Nearly level
Permeability: Moderately slow above the fragipan and slow or very slow in the fragipan
Content of organic matter: Moderate
Available water capacity: Low
Shrink-swell potential: Moderate

Soils of Minor Extent

- Clifty
- Negley
- Taggart
- Tioga

Use and Management

Major uses: Cropland and pasture
Management concerns: Erosion, slope, seasonal wetness, and restricted permeability
Management measures: Conservation tillage and residue management, construction and maintenance of grassed waterways and grade-changing structures, maintenance and improvement of drainage systems

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, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Miamian silt loam, 2 to 6 percent, eroded, is a phase of the Miamian series.

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

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. Rossmoyne-Cana complex, 2 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map

units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Shelocta-Brownsville association, very steep, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, gravel, 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.

Aa—Adrian muck

Setting

Landform: Outwash plains and till plains
Position on the landform: Depressions

Map Unit Composition

Adrian and similar components: 90 percent
Contrasting components:
Westland soils—10 percent

Soil Properties and Qualities

Available water capacity: About 11 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 110 to 150 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Seasonal high water table: At or near the surface
Kind of water table: Apparent
Drainage class: Very poorly drained
Flooding: None
Content of organic matter in the surface layer: 55 to 75 percent
Parent material: Organic, grassy material over gravelly, loamy, and sandy outwash
Permeability: Moderately rapid in the organic material and rapid in the substratum
Ponding duration: Very long
Depth of ponding: 0 to 1 foot
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Muck
Average surface runoff: Negligible
Hazard of wind erosion: Severe
Distinctive soil property: Organic material over gravelly, loamy, and sandy outwash

Use and Management Considerations

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
- The sandy textures reduce the traction of wheeled forestry equipment.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.

Building site development

- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- When drained, the organic layers in this soil subside. Subsidence leads to differential rates of settlement, which may cause foundations to break. Because of the high potential for subsidence, this soil is generally unsuited to building site development.

Septic tank absorption fields

- Because of ponding, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Subsidence of the organic material reduces the bearing capacity of this soil.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 5w
Pasture and hayland suitability group: D-1
Prime farmland status: Not prime farmland
Hydric soil status: Hydric soil

AcC2—Alexandria silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Shoulders

Map Unit Composition

Alexandria and similar components: 90 percent
Contrasting components:
Fox soils—5 percent
Markland soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.9 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 60 inches to dense material
Depth to the seasonal high water table: 3 to 5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Wisconsinan till material
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

AcD2—Alexandria silt loam, 12 to 20 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Footslopes

Map Unit Composition

Alexandria and similar components: 90 percent
Contrasting components:
Cruze soils—5 percent
Fox soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.4 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 60 inches to dense material
Depth to the seasonal high water table: 3 to 5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Wisconsinan till material
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

AcE2—Alexandria silt loam, 20 to 35 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Backslopes

Map Unit Composition

Alexandria and similar components: 90 percent
Contrasting components:
Cruze soils—5 percent
Fox soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.7 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 60 inches to dense material
Depth to the seasonal high water table: 3 to 5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Wisconsinan till material
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the

amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

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

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: A-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

AeE2—Alexandria-Fox complex, 20 to 35 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Backslopes

Map Unit Composition

Alexandria and similar components: 55 percent
Fox and similar components: 35 percent
Contrasting components:
Cruze soils—5 percent
Rodman soils—5 percent

Soil Properties and Qualities

Alexandria

Available water capacity: About 8.1 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 60 inches to dense material
Depth to the seasonal high water table: 3 to 5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Wisconsinan till material
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Fox

Available water capacity: About 6.3 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 4 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin loess and loamy alluvium overlying stratified sandy outwash
Permeability: Moderate in the solum and rapid or very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam

Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Alexandria Soil

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting the Fox Soil

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the

amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope and the risk of ground-water contamination, this soil is generally unsuited to use as a site for septic systems.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: Alexandria—A-3; Fox—A-3
Prime farmland status: Not prime farmland
Hydric soil status: Alexandria—not hydric; Fox—not hydric

AvA—Avonburg silt loam, 0 to 2 percent slopes

Setting

Landform: Illinoian till plains
Position on the landform: Flats

Map Unit Composition

Avonburg and similar components: 85 percent
Contrasting components:
Rossmoyne soils—15 percent

Soil Properties and Qualities

Available water capacity: About 9.6 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 4 to 8 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 2 percent
Parent material: Loess and the underlying Illinoian till material
Permeability: Moderately slow in the upper part of the solum and very slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
• The root system of plants may be damaged by frost action.
• Restricting grazing during wet periods can minimize compaction.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-2
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

AvB—Avonburg silt loam, 2 to 6 percent slopes

Setting

Landform: Illinoian till plains
Position on the landform: Slight rises

Map Unit Composition

Avonburg and similar components: 85 percent
Contrasting components:
Rossmoyne soils—15 percent

Soil Properties and Qualities

Available water capacity: About 9.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 4 to 8 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 2 percent
Parent material: Loess and the underlying Illinoian till material
Permeability: Moderately slow in the upper part of the solum and very slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Erosion control is needed when pastures are renovated.
• Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
• The root system of plants may be damaged by frost action.
• Restricting grazing during wet periods can minimize compaction.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: C-2
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

BeD—Berks channery silt loam, 12 to 20 percent slopes

Setting

Landform: Hills
Position on the landform: Footslopes

Map Unit Composition

Berks and similar components: 85 percent
Contrasting components:
Cruze soils—5 percent
Gilpin soils—5 percent
Shelocta soils—5 percent

Soil Properties and Qualities

Available water capacity: About 2.4 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 5 to 15 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Residuum
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Low
Shrink-swell potential: Low
Texture of the surface layer: Channery silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The rooting depth of crops is restricted by bedrock.
• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• The rooting depth of plants may be restricted by bedrock.

Forestland

• Soil moisture encourages the growth of competing

vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.

Building site development

• The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

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

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: F-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

BeE—Berks channery silt loam, 20 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes

Map Unit Composition

Berks and similar components: 85 percent
Contrasting components:
Cruze soils—5 percent
Gilpin soils—5 percent
Shelocta soils—5 percent

Soil Properties and Qualities

Available water capacity: About 2.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 5 to 15 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Residuum
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Low
Shrink-swell potential: Low
Texture of the surface layer: Channery silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• The rooting depth of plants may be restricted by bedrock.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.
• The slope increases the hazard of erosion on logging roads.

• Because of the slope, specialized forestry equipment is required.

Building site development

• The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the limited depth to bedrock and the slope, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

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

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: F-2
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

BgC—Berks-Tarhollow complex, 6 to 15 percent slopes

Setting

Landform: Hills
Position on the landform: Summits

Map Unit Composition

Berks and similar components: 50 percent
Tarhollow and similar components: 40 percent
Contrasting components:
Cruze soils—5 percent
Gilpin soils—5 percent

Soil Properties and Qualities

Berks

Available water capacity: About 2.3 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 5 to 15 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Residuum
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Low
Shrink-swell potential: Low
Texture of the surface layer: Channery silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Tarhollow

Available water capacity: About 10 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep or very deep
Depth to root-restrictive feature: 40 to 80 inches to bedrock (paralithic)
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over residuum
Permeability: Moderate in the loess and slow in the residuum
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Berks Soil

Cropland

• The rooting depth of crops is restricted by bedrock.
• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
- The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

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

Use and Management Considerations Affecting the Tarhollow Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: Berks—F-1; Tarhollow—A-6
Prime farmland status: Not prime farmland
Hydric soil status: Berks—not hydric; Tarhollow—not hydric

CaB—Cana silt loam, 2 to 6 percent slopes

Setting

Landform: Glaciated hills
Position on the landform: Summits

Map Unit Composition

Cana and similar components: 85 percent
Contrasting components:
Rossmoyne soils—15 percent

Soil Properties and Qualities

Available water capacity: About 7.6 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian till material over clayey residuum
Permeability: Moderate or moderately slow in the upper part and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• The rooting depth of crops may be restricted by the high clay content.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• Because of the seasonal high water table, the period

when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CaC2—Cana silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Glaciated hills
Position on the landform: Shoulders

Map Unit Composition

Cana and similar components: 90 percent
Contrasting components:
Rossmoyne soils—10 percent

Soil Properties and Qualities

Available water capacity: About 7.1 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian till material over clayey residuum
Permeability: Moderate or moderately slow in the upper part and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky

when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

CaD2—Cana silt loam, 12 to 20 percent slopes, eroded

Setting

Landform: Glaciated hills
Position on the landform: Footslopes

Map Unit Composition

Cana and similar components: 90 percent
Contrasting components:
Hickory soils—5 percent
Shelocta soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.8 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian till material over clayey residuum
Permeability: Moderate or moderately slow in the upper part and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.

• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

CaE2—Cana silt loam, 20 to 35 percent slopes, eroded

Setting

Landform: Glaciated hills
Position on the landform: Backslopes

Map Unit Composition

Cana and similar components: 90 percent
Contrasting components:
Hickory soils—5 percent
Shelocta soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6.9 inches to a depth of 50 inches

Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian till material over clayey residuum
Permeability: Moderate or moderately slow in the upper part and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: A-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Cd—Carlisle muck

Setting

Landform: Ground moraines
Position on the landform: Depressions

Map Unit Composition

Carlisle and similar components: 90 percent
Contrasting components:
Westland soils—10 percent

Soil Properties and Qualities

Available water capacity: About 22.5 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 150 to 230 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Seasonal high water table: At or near the surface
Kind of water table: Apparent
Drainage class: Very poorly drained
Flooding: None
Content of organic matter in the surface layer: 70 to 99 percent
Parent material: Woody organic material
Permeability: Moderately rapid
Ponding duration: Very long
Depth of ponding: 0.0 to 0.5 foot
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Muck
Average surface runoff: Negligible
Hazard of wind erosion: Severe
Distinctive soil property: Woody organic material

Use and Management Considerations

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- When drained, the organic layers in this soil subside. Subsidence leads to differential rates of settlement, which may cause foundations to break. Because of the high potential for subsidence, this soil is generally unsuited to building site development.

Septic tank absorption fields

- Because of ponding, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Subsidence of the organic material reduces the bearing capacity of this soil.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 3w
Pasture and hayland suitability group: D-1
Prime farmland status: Not prime farmland
Hydric soil status: Hydric soil

CeD—Casco-Rodman complex, 12 to 18 percent slopes

Setting

Landform: Outwash plains
Position on the landform: Risers

Map Unit Composition

Casco and similar components: 65 percent
Rodman and similar components: 25 percent
Contrasting components:
Fox soils—10 percent

Soil Properties and Qualities

Casco

Available water capacity: About 1.7 inches to a depth of 15 inches
Cation-exchange capacity in the surface layer: 3 to 15 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 10 to 20 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Somewhat excessively drained
Flooding: None
Content of organic matter in the surface layer: 1 to 2 percent

Parent material: A thin layer of loamy deposits over calcareous sand and gravel
Permeability: Moderately rapid in the subsoil and very rapid in the substratum
Ponding: None
Potential for frost action: Low
Shrink-swell potential: Moderate
Texture of the surface layer: Gravelly loam
Average surface runoff: Low
Hazard of wind erosion: Moderate

Rodman

Available water capacity: About 3.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Excessively drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Calcareous, stratified gravelly sand and sand
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Low
Shrink-swell potential: Low
Texture of the surface layer: Gravelly loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Casco Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope and the risk of ground-water contamination, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.

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

Use and Management Considerations Affecting the Rodman Soil

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
• The sandy textures reduce the traction of wheeled forestry equipment.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope and the risk of ground-water contamination, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

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

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: Casco—B-1; Rodman—B-1
Prime farmland status: Not prime farmland
Hydric soil status: Casco—not hydric; Rodman—not hydric

CgA—Celina silt loam, 0 to 2 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Flats

Map Unit Composition

Celina and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Kokomo soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 9 to 19 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched

Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over Wisconsinan till material
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Systematic subsurface drainage can extend the period of planting and harvesting crops.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CgB—Celina silt loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Slight rises

Map Unit Composition

Celina and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Kokomo soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6 inches to a depth of 30 inches

Cation-exchange capacity in the surface layer: 9 to 19 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over Wisconsinan till material
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Systematic subsurface drainage can extend the period of planting and harvesting crops.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CgB2—Celina silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Slight rises

Map Unit Composition

Celina and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Kokomo soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.6 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 9 to 19 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over Wisconsinan till material
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Systematic subsurface drainage can extend the period of planting and harvesting crops.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil

greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

ChA—Chavies silt loam, rarely flooded

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Chavies and similar components: 90 percent
Contrasting components:
Cidermill soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.8 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Rare
Content of organic matter in the surface layer: 0.5 to 4.0 percent
Parent material: Alluvium
Permeability: Moderately rapid
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Very low
Hazard of wind erosion: Moderate

Use and Management Considerations

Cropland

- This soil is well suited to cropland.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- This soil is well suited to pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under unusual weather conditions, this soil is subject to rare flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CmA—Cidermill silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Cidermill and similar components: 90 percent
Contrasting components:
Chavies soils—5 percent
Fitchville soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty and loamy alluvium over stratified outwash materials
Permeability: Moderate in the upper part of the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- This soil is well suited to pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is well suited to building site development.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CmB—Cidermill silt loam, 2 to 6 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Cidermill and similar components: 90 percent
Contrasting components:
Chavies soils—5 percent
Fitchville soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.5 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent

Parent material: Silty and loamy alluvium over stratified outwash materials
Permeability: Moderate in the upper part of the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Erosion control is needed when pastures are renovated.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is well suited to building site development.

Septic tank absorption fields

• The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Cp—Clifty silt loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Clifty and similar components: 90 percent
Contrasting components:
Skidmore soils—5 percent
Spargus soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 1 to 4 percent
Parent material: Loamy alluvium
Permeability: Moderately rapid
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.
• Flooding in winter and spring damages small grain, such as winter wheat.

Pastureland

• Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
• Sediment left on forage plants after a flood may

affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2s
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CrA—Coolville silt loam, 0 to 2 percent slopes

Setting

Landform: Hills
Position on the landform: Summits

Map Unit Composition

Coolville and similar components: 90 percent
Contrasting components:
Tilsit soils—10 percent

Soil Properties and Qualities

Available water capacity: About 8.5 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over clayey residuum
Permeability: Moderate in the upper part of the solum and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CrB—Coolville silt loam, 2 to 6 percent slopes

Setting

Landform: Hills
Position on the landform: Summits

Map Unit Composition

Coolville and similar components: 90 percent
Contrasting components:
Cruze soils—5 percent
Tilsit soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.4 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over clayey residuum
Permeability: Moderate in the upper part of the solum and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• The rooting depth of crops may be restricted by the high clay content.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

CrC2—Coolville silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Shoulders

Map Unit Composition

Coolville and similar components: 90 percent
Contrasting components:
Cruze soils—10 percent

Soil Properties and Qualities

Available water capacity: About 6 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over clayey residuum
Permeability: Moderate in the upper part of the solum and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.

• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

CvA—Crosby silt loam, 0 to 2 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Flats

Map Unit Composition

Crosby and similar components: 90 percent
Contrasting components:
Celina soils—5 percent
Kokomo soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.8 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 6 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess and the underlying Wisconsinan till material
Permeability: Moderate or moderately slow above the

argillic horizon and slow or very slow below the argillic horizon
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

CvB—Crosby silt loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Slight rises

Map Unit Composition

Crosby and similar components: 85 percent
Contrasting components:
Celina soils—5 percent
Kokomo soils—5 percent
Miamian soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.4 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 6 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess and the underlying Wisconsinan till material
Permeability: Moderate or moderately slow above the argillic horizon and slow or very slow below the argillic horizon
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

CwC2—Cruze silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Shoulders

Map Unit Composition

Cruze and similar components: 90 percent
Contrasting components:
Coolville soils—5 percent
Weikert soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.7 inches to a depth of 54 inches
Cation-exchange capacity in the surface layer: 8 to 22 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 48 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Colluvium over residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• The rooting depth of crops may be restricted by the high clay content.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and

a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

CwD—Cruze silt loam, 12 to 20 percent slopes

Setting

Landform: Hills
Position on the landform: Footslopes

Map Unit Composition

Cruze and similar components: 90 percent
Contrasting components:
Shelocta soils—10 percent

Soil Properties and Qualities

Available water capacity: About 6.9 inches to a depth of 54 inches
Cation-exchange capacity in the surface layer: 8 to 22 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 48 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Colluvium over residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing

vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

CwE—Cruze silt loam, 20 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes

Map Unit Composition

Cruze and similar components: 90 percent
Contrasting components:
Shelocta soils—10 percent

Soil Properties and Qualities

Available water capacity: About 7.1 inches to a depth of 54 inches
Cation-exchange capacity in the surface layer: 8 to 22 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 48 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Colluvium over residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.

• The slope may restrict the use of some farm equipment.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: F-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

DAM—Dam

This map unit consists of barriers constructed to control the flow or raise the level of water. The barriers are covered with concrete or rock.

EeA—Eldean loam, 0 to 2 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Eldean and similar components: 90 percent
Contrasting components:
Ockley soils—5 percent
Warsaw soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.6 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent

Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2s
Pasture and hayland suitability group: B-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

EeB—Eldean loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Eldean and similar components: 90 percent
Contrasting components:
Ockley soils—10 percent

Soil Properties and Qualities

Available water capacity: About 5.3 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: B-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

EeC2—Eldean loam, 6 to 12 percent slopes, eroded

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Risers

Map Unit Composition

Eldean and similar components: 85 percent
Contrasting components:
Casco soils—5 percent
Ockley soils—5 percent
Rodman soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.7 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: B-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

EgA—Eldean gravelly loam, 0 to 2 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Eldean and similar components: 90 percent
Contrasting components:
Ockley soils—5 percent
Warsaw soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.9 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 22 milliequivalents per 100 grams

Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Gravelly loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2s
Pasture and hayland suitability group: B-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

EgB—Eldean gravelly loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Eldean and similar components: 90 percent
Contrasting components:
Ockley soils—10 percent

Soil Properties and Qualities

Available water capacity: About 4.7 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained

Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Gravelly loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: B-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

EgC2—Eldean gravelly loam, 6 to 12 percent slopes, eroded

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Risers

Map Unit Composition

Eldean and similar components: 85 percent
Contrasting components:
Casco soils—5 percent
Ockley soils—5 percent
Rodman soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.5 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification

Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Gravelly loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: B-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

ErD—Ernest silt loam, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Footslopes

Map Unit Composition

Ernest and similar components: 85 percent

Contrasting components:
Omulga soils—5 percent
Shelocta soils—5 percent
Wyatt soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.1 inches to a depth of 28 inches
Cation-exchange capacity in the surface layer: 18 to 25 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 36 inches to a fragipan
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Colluvium
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

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

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: F-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

EuA—Euclid silt loam, rarely flooded

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Euclid and similar components: 85 percent
Contrasting components:
Gessie soils—5 percent
Glenford soils—5 percent
Sloan soils—5 percent

Soil Properties and Qualities

Available water capacity: About 10.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Apparent
Drainage class: Somewhat poorly drained
Frequency of flooding: Rare
Content of organic matter in the surface layer: 2 to 3 percent
Parent material: Silty alluvium
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under unusual weather conditions, this soil is subject to rare flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

FhA—Fitchville silt loam, 0 to 2 percent slopes

Setting

Landform: Lake terraces and stream terraces
Position on the landform: Treads

Map Unit Composition

Fitchville and similar components: 85 percent
Contrasting components:
Glenford soils—10 percent
Mentor soils—5 percent

Soil Properties and Qualities

Available water capacity: About 10.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 2 to 3 percent
Parent material: Stratified silty glaciolacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

FhB—Fitchville silt loam, 2 to 6 percent slopes

Setting

Landform: Lake terraces and stream terraces
Position on the landform: Treads

Map Unit Composition

Fitchville and similar components: 85 percent
Contrasting components:
Glenford soils—10 percent
Mentor soils—5 percent

Soil Properties and Qualities

Available water capacity: About 10.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 2 to 3 percent
Parent material: Stratified silty glaciolacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e

Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

FnB—Fox loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Fox and similar components: 90 percent
Contrasting components:
Casco soils—10 percent

Soil Properties and Qualities

Available water capacity: About 6.7 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 4 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin loess and loamy deposits over stratified sandy outwash materials
Permeability: Moderate in the loamy deposits and rapid or very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

FnC2—Fox loam, 6 to 12 percent slopes, eroded

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Risers

Map Unit Composition

Fox and similar components: 85 percent
Contrasting components:
Casco soils—10 percent
Alexandria soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 4 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin loess and loamy deposits over stratified sandy outwash materials
Permeability: Moderate in the loamy deposits and rapid or very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Ge—Gessie silt loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Gessie and similar components: 80 percent
Contrasting components:
Euclid soils—5 percent
Huntington soils—5 percent
Ross soils—5 percent
Stonelick soils—5 percent

Soil Properties and Qualities

Available water capacity: About 12 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 9 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 1 to 2 percent
Parent material: Recent alluvium
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.
- Small grain crops may be damaged by flooding in winter and spring.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w

Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Gf—Gessie silt loam, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Gessie and similar components: 85 percent
Contrasting components:
Huntington soils—5 percent
Ross soils—5 percent
Sloan soils—5 percent

Soil Properties and Qualities

Available water capacity: About 12 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 9 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Frequent
Content of organic matter in the surface layer: 1 to 2 percent
Parent material: Recent alluvium
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting (fig. 10), improves tilth, and increases the rate of water infiltration.
- Winter grain crops are commonly not grown because of the frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Figure 10.—Surface crusting in an area of Gessie silt loam, frequently flooded.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The frequent flooding of this soil greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

GgC2—Gilpin silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Summits and shoulders

Map Unit Composition

Gilpin and similar components: 85 percent
Contrasting components:
Berks soils—5 percent
Tarhollow soils—5 percent
Tilsit soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 5 to 15 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 4.0 percent
Parent material: Residuum
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The rooting depth of crops is restricted by bedrock.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
- The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
- The slope influences the use of machinery and the

amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: F-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

GhC—Gilpin-Tilsit complex, 6 to 12 percent slopes

Setting

Landform: Hills
Position on the landform: Summits and shoulders

Map Unit Composition

Gilpin and similar components: 60 percent
Tilsit and similar components: 30 percent
Contrasting components:
Berks soils—5 percent
Tarhollow soils—5 percent

Soil Properties and Qualities

Gilpin

Available water capacity: About 4.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 5 to 15 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 4.0 percent
Parent material: Residuum
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Tilsit

Available water capacity: About 4.3 inches to a depth of 23 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 18 to 28 inches to a fragipan
Depth to the seasonal high water table: 1.5 to 2.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over residuum
Permeability: Moderate above the fragipan and slow in the fragipan
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight
Distinctive soil property: Underlain by bedrock between depths of 40 and 80 inches

Use and Management Considerations Affecting the Gilpin Soil

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The rooting depth of crops is restricted by bedrock.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
- The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting the Tilsit Soil

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.

- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- The seasonal high water table reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: Gilpin—F-1; Tilsit—F-3
Prime farmland status: Not prime farmland
Hydric soil status: Gilpin—not hydric; Tilsit—not hydric

GnA—Glenford silt loam, 0 to 2 percent slopes

Setting

Landform: Lake terraces and stream terraces
Position on the landform: Treads

Map Unit Composition

Glenford and similar components: 90 percent
Contrasting components:
Fitchville soils—10 percent

Soil Properties and Qualities

Available water capacity: About 9.5 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Stratified silty glaciolacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

GnB—Glenford silt loam, 2 to 6 percent slopes

Setting

Landform: Lake terraces and stream terraces
Position on the landform: Treads

Map Unit Composition

Glenford and similar components: 85 percent
Contrasting components:
Fitchville soils—10 percent
Mentor soils—5 percent

Soil Properties and Qualities

Available water capacity: About 9.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Stratified silty glaciolacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

HaB—Haubstadt silt loam, 2 to 6 percent slopes

Setting

Landform: High lake plains
Position on the landform: Treads

Map Unit Composition

Haubstadt and similar components: 90 percent
Contrasting components:
Negley soils—10 percent

Soil Properties and Qualities

Available water capacity: About 4.8 inches to a depth of 26 inches
Cation-exchange capacity in the surface layer: 9 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 16 to 36 inches to a fragipan
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over outwash materials or lacustrine materials
Permeability: Moderate above the fragipan and slow in the fragipan
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.
• The rooting depth of crops is restricted by dense soil material.

Pastureland

• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• Erosion control is needed when pastures are renovated.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

HaC2—Haubstadt silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: High lake plains
Position on the landform: Toeslopes

Map Unit Composition

Haubstadt and similar components: 90 percent
Contrasting components:
Negley soils—10 percent

Soil Properties and Qualities

Available water capacity: About 4.5 inches to a depth of 26 inches
Cation-exchange capacity in the surface layer: 9 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 16 to 36 inches to a fragipan
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over outwash materials or lacustrine materials
Permeability: Moderate above the fragipan and slow in the fragipan
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture and controls erosion.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: F-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Hd—Haymond silt loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Haymond and similar components: 85 percent
Contrasting components:
Clifty soils—5 percent
Sloan soils—5 percent
Spargus soils—5 percent

Soil Properties and Qualities

Available water capacity: About 13 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 4 to 15 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty alluvium
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low

Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.
- Small grain crops may be damaged by flooding in winter and spring.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

HeA—Henshaw silt loam, 0 to 4 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Henshaw and similar components: 90 percent
Contrasting components:
Patton soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 6 to 14 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1 to 2 feet
Kind of water table: Apparent
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Silty alluvium derived from calcareous loess
Permeability: Moderately slow
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.

• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
• Restricting grazing during wet periods can minimize compaction.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

HkD2—Hickory silt loam, 12 to 20 percent slopes, eroded

Setting

Landform: Illinoian till plains
Position on the landform: Footslopes

Map Unit Composition

Hickory and similar components: 90 percent
Contrasting components:
Negley soils—10 percent

Soil Properties and Qualities

Available water capacity: About 9.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 19 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 2 percent
Parent material: Illinoian till material
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.

• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

HkE2—Hickory silt loam, 20 to 35 percent slopes, eroded

Setting

Landform: Illinoian till plains
Position on the landform: Backslopes

Map Unit Composition

Hickory and similar components: 90 percent
Contrasting components:
Negley soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 19 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 2 percent
Parent material: Illinoian till material
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The slope increases the hazard of erosion on logging roads.

• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: A-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Ht—Huntington silt loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Huntington and similar components: 85 percent
Contrasting components:
Gessie soils—10 percent
Stonelick soils—5 percent

Soil Properties and Qualities

Available water capacity: About 11.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 12 to 26 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 3 to 6 percent
Parent material: Alluvium
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.
• Small grain crops may be damaged by flooding in winter and spring.

Pastureland

• Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
• Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

• This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

KaA—Kendallville silt loam, 0 to 2 percent slopes

Setting

Landform: Kames
Position on the landform: Summits

Map Unit Composition

Kendallville and similar components: 85 percent
Contrasting components:
Ockley soils—10 percent
Miamian soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.6 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over outwash material over till material
Permeability: Moderate in the solum and moderately slow in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Controlling traffic can minimize soil compaction.
• This soil is well suited to cropland.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• This soil is well suited to pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-1

Prime farmland status: Prime farmland
Hydric soil status: Not hydric

KaB—Kendallville silt loam, 2 to 6 percent slopes

Setting

Landform: Kames
Position on the landform: Summits

Map Unit Composition

Kendallville and similar components: 85 percent
Contrasting components:
Ockley soils—10 percent
Miamian soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over outwash material over till material
Permeability: Moderate in the solum and moderately slow in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

KeC2—Kendallville-Eldean complex, 6 to 12 percent slopes, eroded

Setting

Landform: Kames
Position on the landform: Shoulders

Map Unit Composition

Kendallville and similar components: 60 percent
Eldean and similar components: 30 percent
Contrasting components:
Fox soils—5 percent
Miamian soils—5 percent

Soil Properties and Qualities

Kendallville

Available water capacity: About 8.7 inches to a depth of 60 inches

Cation-exchange capacity in the surface layer: 4 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over outwash material over till material
Permeability: Moderate in the solum and moderately slow in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Eldean

Available water capacity: About 5.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Kendallville Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

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

Use and Management Considerations Affecting the Eldean Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture and controls erosion.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: Kendallville—A-1; Eldean—B-1
Prime farmland status: Not prime farmland
Hydric soil status: Kendallville—not hydric; Eldean—not hydric

KeD2—Kendallville-Eldean complex, 12 to 20 percent slopes, eroded

Setting

Landform: Kames
Position on the landform: Footslopes

Map Unit Composition

Kendallville and similar components: 50 percent
Eldean and similar components: 30 percent

Contrasting components:
Miamian soils—10 percent
Casco soils—5 percent
Fox soils—5 percent

Soil Properties and Qualities

Kendallville

Available water capacity: About 8.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 4 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over outwash material over till material
Permeability: Moderate in the solum and moderately slow in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Eldean

Available water capacity: About 4.9 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Kendallville Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting the Eldean Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture and controls erosion.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: Kendallville—A-1; Eldean—B-1
Prime farmland status: Not prime farmland
Hydric soil status: Kendallville—not hydric; Eldean—not hydric

KeE2—Kendallville-Eldean complex, 20 to 35 percent slopes, eroded

Setting

Landform: Kames
Position on the landform: Backslopes

Map Unit Composition

Kendallville and similar components: 50 percent
Eldean and similar components: 30 percent
Contrasting components:
Casco soils—10 percent
Miamian soils—10 percent

Soil Properties and Qualities

Kendallville

Available water capacity: About 8.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 4 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over outwash material over till material
Permeability: Moderate in the solum and moderately slow in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Eldean

Available water capacity: About 3.7 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderate in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Kendallville Soil

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting the Eldean Soil

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields because of the excessive permeability, which limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: Kendallville—A-3; Eldean—B-2
Prime farmland status: Not prime farmland
Hydric soil status: Kendallville—not hydric; Eldean—not hydric

Kn—Kinn silt loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Kinn and similar components: 85 percent
Contrasting components:
Patton soils—5 percent
Sloan soils—5 percent
Westland soils—5 percent

Soil Properties and Qualities

Available water capacity: About 12 inches to a depth of 60 inches

Cation-exchange capacity in the surface layer: 12 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Apparent
Drainage class: Moderately well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Recent alluvium over a dark buried soil
Permeability: Moderate in the recent alluvium and moderately slow in the buried soil
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Measures that protect the soil from scouring (fig. 11) and minimize the loss of crop residue caused by flooding are needed.
- Small grain crops may be damaged by flooding in winter and spring.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.

Figure 11.—Streambank erosion in an area of Kinn silt loam, occasionally flooded.

- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w

Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Ko—Kokomo silt loam, overwash

Setting

Landform: Wisconsinan till plains
Position on the landform: Flats and depressions

Map Unit Composition

Kokomo and similar components: 90 percent
Contrasting components:
Celina soils—5 percent
Crosby soils—5 percent

Soil Properties and Qualities

Available water capacity: About 10.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 29 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Seasonal high water table: At the surface to 0.5 foot below the surface
Kind of water table: Apparent
Drainage class: Very poorly drained
Flooding: None
Content of organic matter in the surface layer: 3 to 6 percent
Parent material: Loamy material and till
Permeability: Moderately slow in the subsoil and slow in the substratum
Ponding duration: Long
Depth of ponding: 0 to 2 feet
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- A combination of surface and subsurface drainage helps to remove excess water.
- Subsurface drainage helps to lower the seasonal high water table.
- Small grain crops, such as winter wheat, are damaged by ponding in the winter and spring.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

Septic tank absorption fields

- Because of ponding and the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1

Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric soil

Kp—Kokomo silty clay loam

Setting

Landform: Wisconsinan till plains
Position on the landform: Flats and depressions

Map Unit Composition

Kokomo and similar components: 90 percent
Contrasting components:
Celina soils—5 percent
Crosby soils—5 percent

Soil Properties and Qualities

Available water capacity: About 9.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 16 to 33 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Seasonal high water table: At the surface to 0.5 foot below the surface
Kind of water table: Apparent
Drainage class: Very poorly drained
Flooding: None
Content of organic matter in the surface layer: 3 to 6 percent
Parent material: Loamy material and till
Permeability: Moderately slow in the subsoil and slow in the substratum
Ponding duration: Long
Depth of ponding: 0 to 2 feet
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silty clay loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.
- Subsurface drainage helps to lower the seasonal high water table.
- Small grain crops, such as winter wheat, are damaged by ponding in winter and spring.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

Septic tank absorption fields

- Because of ponding and the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost

action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric soil

LfC2—Latham silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Shoulders

Map Unit Composition

Latham and similar components: 85 percent
Contrasting components:
Coolville soils—5 percent
Gilpin soils—5 percent
Tarhollow soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.3 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The rooting depth of crops is restricted by bedrock and the high clay content.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

• The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

• This soil is poorly suited to building site development.
• The nature of the soft bedrock and the depth to bedrock in this soil reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: F-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

LfD2—Latham silt loam, 12 to 20 percent slopes, eroded

Setting

Landform: Hills
Position on the landform: Footslopes

Map Unit Composition

Latham and similar components: 90 percent
Contrasting components:
Gilpin soils—5 percent
Wharton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.1 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The rooting depth of crops is restricted by bedrock and the high clay content.
• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• The root system of winter grain crops may be damaged by frost action.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.

• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.
• The rooting depth of plants may be restricted by bedrock.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The nature of the soft bedrock and the depth to bedrock in this soil reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: F-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

LfE—Latham silt loam, 20 to 35 percent slopes

Setting

Landform: Hills
Position on the landform: Backslopes

Map Unit Composition

Latham and similar components: 85 percent
Contrasting components:
Gilpin soils—5 percent
Shelocta soils—5 percent
Wharton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (paralithic)

Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.
- The root system of plants may be damaged by frost action.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
- The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The nature of the soft bedrock and the depth to bedrock in this soil reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: F-2
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

LgD—Latham-Wharton complex, 15 to 25 percent slopes

Setting

Landform: Hills
Position on the landform: Footslopes

Map Unit Composition

Latham and similar components: 50 percent

Wharton and similar components: 40 percent
Contrasting components:
Gilpin soils—10 percent

Soil Properties and Qualities

Latham

Available water capacity: About 4.3 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Wharton

Available water capacity: About 8.4 inches to a depth of 56 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Deep or very deep
Depth to root-restrictive feature: 40 to 72 inches to bedrock (lithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 5.0 percent
Parent material: Residuum
Permeability: Slow or moderately slow
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Latham Soil

Cropland

- The rooting depth of crops is restricted by bedrock and the high clay content.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to

ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The nature of the soft bedrock and the depth to bedrock in this soil reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting the Wharton Soil

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

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

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: Latham—F-1; Wharton—A-2
Prime farmland status: Not prime farmland
Hydric soil status: Latham—not hydric; Wharton—not hydric

LrB—Libre silt loam, 2 to 6 percent slopes

Setting

Landform: Illinoian outwash terraces
Position on the landform: Treads

Map Unit Composition

Libre and similar components: 90 percent
Contrasting components:
Taggart soils—10 percent

Soil Properties and Qualities

Available water capacity: About 11.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 12 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess and the underlying Illinoian outwash material
Permeability: Moderate in the upper part of the solum and moderately slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the

absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

LrC2—Libre silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Illinoian outwash terraces
Position on the landform: Risers

Map Unit Composition

Libre and similar components: 90 percent
Contrasting components:
Negley soils—5 percent
Taggart soils—5 percent

Soil Properties and Qualities

Available water capacity: About 11.1 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 12 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess and the underlying Illinoian outwash material
Permeability: Moderate in the upper part of the solum and moderately slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MaB—Markland silt loam, 2 to 6 percent slopes

Setting

Landform: Lacustrine terraces and lake plains
Position on the landform: Treads

Map Unit Composition

Markland and similar components: 90 percent
Contrasting components:
McGary soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 3 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 5 percent
Parent material: Thin loess over lacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: F-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MbC2—Markland silty clay loam, 6 to 12 percent slopes, eroded

Setting

Landform: Lacustrine terraces and lake plains
Position on the landform: Risers

Map Unit Composition

Markland and similar components: 85 percent
Contrasting components:
Alexandria soils—10 percent
McGary soils—5 percent

Soil Properties and Qualities

Available water capacity: About 9.6 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 16 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 3 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 5 percent
Parent material: Thin loess over lacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: High
Texture of the surface layer: Silty clay loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: F-5
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MbD2—Markland silty clay loam, 12 to 20 percent slopes, eroded

Setting

Landform: Lacustrine terraces and lake plains
Position on the landform: Risers and toeslopes

Map Unit Composition

Markland and similar components: 85 percent
Contrasting components:
Alexandria soils—10 percent
McGary soils—5 percent

Soil Properties and Qualities

Available water capacity: About 9.7 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 16 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 3 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 5 percent
Parent material: Thin loess over lacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: High
Texture of the surface layer: Silty clay loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• Controlling traffic can minimize soil compaction.
• The rooting depth of crops may be restricted by the high clay content.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.

• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: F-5
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MbE2—Markland silty clay loam, 20 to 35 percent slopes, eroded

Setting

Landform: Lacustrine terraces and lake plains
Position on the landform: Risers and toeslopes

Map Unit Composition

Markland and similar components: 90 percent
Contrasting components:
Alexandria soils—10 percent

Soil Properties and Qualities

Available water capacity: About 9.7 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 16 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 3 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 5 percent
Parent material: Thin loess over lacustrine deposits
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: High
Texture of the surface layer: Silty clay loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.

• The slope increases the hazard of erosion on logging roads.
• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 7e
Pasture and hayland suitability group: F-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

McA—Martinsville loam, rarely flooded

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Martinsville and similar components: 90 percent
Contrasting components:
Mentor soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Rare
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loamy outwash
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• This soil is well suited to cropland.

Pastureland

• This soil is well suited to pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Under unusual weather conditions, this soil is subject to rare flooding. The flooding may result in

physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MdA—McGary silt loam, 0 to 2 percent slopes

Setting

Landform: Lacustrine terraces and lake plains
Position on the landform: Treads

Map Unit Composition

McGary and similar components: 90 percent
Contrasting components:
Markland soils—10 percent

Soil Properties and Qualities

Available water capacity: About 9.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 14 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin loess over lacustrine deposits
Permeability: Very slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 3w
Pasture and hayland suitability group: C-2
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

MdB—McGary silt loam, 2 to 6 percent slopes

Setting

Landform: Lacustrine terraces and lake plains
Position on the landform: Treads

Map Unit Composition

McGary and similar components: 90 percent
Contrasting components:
Markland soils—10 percent

Soil Properties and Qualities

Available water capacity: About 9.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 14 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 0.5 foot to 1.5 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin loess over lacustrine deposits
Permeability: Very slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• The rooting depth of crops may be restricted by the high clay content.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.
• Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

Pastureland

• Erosion control is needed when pastures are renovated.
• Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
• The root system of plants may be damaged by frost action.
• Restricting grazing during wet periods can minimize compaction.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The seasonal high water table can inhibit the growth

of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: C-2
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

MeC2—Mentor silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Stream terraces
Position on the landform: Risers

Map Unit Composition

Mentor and similar components: 90 percent
Contrasting components:
Fitchville soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.6 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 4 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty glaciolacustrine deposits
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing

vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The seasonal high water table and the restricted permeability limit the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MeD2—Mentor silt loam, 12 to 20 percent slopes, eroded

Setting

Landform: Stream terraces
Position on the landform: Risers

Map Unit Composition

Mentor and similar components: 90 percent
Contrasting components:
Princeton soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.6 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 4 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty glaciolacustrine deposits
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing

vegetation. This growth can be controlled by mechanical or chemical methods.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The seasonal high water table and the restricted permeability limit the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MfA—Mentor silt loam, rarely flooded

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Mentor and similar components: 90 percent
Contrasting components:
Euclid soils—5 percent
Martinsville soils—5 percent

Soil Properties and Qualities

Available water capacity: About 11.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 4 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Frequency of flooding: Rare
Content of organic matter in the surface layer: 2 to 3 percent
Parent material: Silty glaciolacustrine deposits
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The root system of winter grain crops may be damaged by frost action.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Under unusual weather conditions, this soil is

subject to rare flooding. The flooding may result in physical damage and costly repairs to buildings.
• This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MgA—Mentor silt loam, gravelly substratum, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Mentor and similar components: 90 percent
Contrasting components:
Fitchville soils—10 percent

Soil Properties and Qualities

Available water capacity: About 11.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty lacustrine deposits over outwash materials
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is well suited to building site development.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MgB—Mentor silt loam, gravelly substratum, 2 to 6 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Treads

Map Unit Composition

Mentor and similar components: 90 percent
Contrasting components:
Fitchville soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.8 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty glaciolacustrine deposits over outwash materials
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is well suited to building site development.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MhB—Miamian silt loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Slight rises

Map Unit Composition

Miamian and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Kokomo soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None

Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Applying a system of conservation tillage that leaves crop residue on the surface after planting, including forage crops in the rotation (fig. 12), and incorporating crop residue or other organic material into the surface layer help to maintain productivity and tilth and minimize crusting and erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Figure 12.—Including hay in the rotation sequence helps to control erosion in areas of Miamian silt loam, 2 to 6 percent slopes.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MhB2—Miamian silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Slight rises

Map Unit Composition

Miamian and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Kokomo soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.5 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost

action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MhC2—Miamian silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Shoulders

Map Unit Composition

Miamian and similar components: 85 percent
Contrasting components:
Crosby soils—5 percent
Kokomo soils—5 percent
Thrifton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.9 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MhD2—Miamian silt loam, 12 to 20 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Footslopes

Map Unit Composition

Miamian and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Thrifton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when

pastures are renovated can conserve soil moisture.
• This soil provides poor summer pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MhE—Miamian silt loam, 20 to 35 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Backslopes

Map Unit Composition

Miamian and similar components: 90 percent
Contrasting components:
Thrifton soils—10 percent

Soil Properties and Qualities

Available water capacity: About 4.8 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.

- The slope may restrict the use of some farm equipment.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, the restricted permeability, and the seasonal high water table, this soil is generally unsuited to use as a site for septic systems.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: A-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MmC2—Miamian silt loam, bedrock substratum, 6 to 12 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Shoulders

Map Unit Composition

Miamian and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Thrifton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.8 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till over bedrock
Permeability: Slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight
Distinctive soil property: Underlain by bedrock within a depth of 60 inches

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to

slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MmD2—Miamian silt loam, bedrock substratum, 12 to 20 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Footslopes

Map Unit Composition

Miamian and similar components: 90 percent
Contrasting components:
Crosby soils—5 percent
Thrifton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till over bedrock
Permeability: Slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight
Distinctive soil property: Underlain by bedrock within a depth of 60 inches

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil

greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: B-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MnB—Miamian-Lewisburg complex, 2 to 6 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Slight rises

Map Unit Composition

Miamian and similar components: 60 percent
Lewisburg and similar components: 30 percent
Contrasting components:
Crosby soils—5 percent
Kokomo soils—5 percent

Soil Properties and Qualities

Miamian

Available water capacity: About 5.2 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to dense material
Depth to the seasonal high water table: 2.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Lewisburg

Available water capacity: About 2.6 inches to a depth of 15 inches
Cation-exchange capacity in the surface layer: 8 to 19 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 10 to 20 inches to dense material
Depth to the seasonal high water table: 1.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Till
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Miamian Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.

- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Use and Management Considerations Affecting the Lewisburg Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material and the high clay content.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and

building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: Miamian—A-1; Lewisburg—A-6
Prime farmland status: Prime farmland
Hydric soil status: Miamian—not hydric; Lewisburg—not hydric

MoB—Milton silt loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan till plains
Position on the landform: Slight rises

Map Unit Composition

Milton and similar components: 90 percent
Contrasting components:
Libre soils—5 percent
Rainsboro soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.1 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 22 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till over residuum
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight
Distinctive soil property: Underlain by bedrock within a depth of 40 inches

Use and Management Considerations

Cropland

- The rooting depth of crops is restricted by bedrock and the high clay content.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
- The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The depth to bedrock and hardness of the bedrock greatly reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.

Septic tank absorption fields

- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing roads.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: F-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

MoC2—Milton silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Shoulders

Map Unit Composition

Milton and similar components: 85 percent
Contrasting components:
Libre soils—5 percent
Negley soils—5 percent
Rainsboro soils—5 percent

Soil Properties and Qualities

Available water capacity: About 3.5 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 22 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till over residuum
Permeability: Moderately slow
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight
Distinctive soil property: Underlain by bedrock within a depth of 40 inches

Use and Management Considerations

Cropland

- The rooting depth of crops is restricted by bedrock and the high clay content.
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and

fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• The rooting depth of plants may be restricted by bedrock.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• The limited depth to bedrock restricts root growth and thus increases the hazard of windthrow.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The depth to bedrock and hardness of the bedrock greatly reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing roads.
• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: F-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

MoE2—Milton silt loam, 20 to 35 percent slopes, eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Backslopes

Map Unit Composition

Milton and similar components: 85 percent
Contrasting components:
Eldean soils—5 percent
Kendallville soils—5 percent
Negley soils—5 percent

Soil Properties and Qualities

Available water capacity: About 3.4 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 22 milliequivalents per 100 grams
Depth class: Moderately deep
Depth to root-restrictive feature: 20 to 40 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Thin layer of loess over till over residuum
Permeability: Moderately slow

Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight
Distinctive soil property: Underlain by bedrock within a depth of 40 inches

Use and Management Considerations

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Applying gravel or crushed stone on haul roads and log landings improves soil strength and improves the ability of the soil to support logging traffic.
- As slope gradients increase, traction problems increase.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The depth to bedrock and hardness of the bedrock greatly reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope and the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing roads.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: F-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

NeC2—Negley loam, 6 to 12 percent slopes, eroded

Setting

Landform: Illinoian outwash terraces
Position on the landform: Risers

Map Unit Composition

Negley and similar components: 90 percent
Contrasting components:
Libre soils—5 percent
Rainsboro soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6.7 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 6 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None

Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

NeD2—Negley loam, 12 to 20 percent slopes, eroded

Setting

Landform: Illinoian outwash terraces
Position on the landform: Risers and footslopes

Map Unit Composition

Negley and similar components: 90 percent
Contrasting components:
Libre soils—10 percent

Soil Properties and Qualities

Available water capacity: About 6.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 6 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Loam

Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

NeE2—Negley loam, 20 to 35 percent slopes, eroded

Setting

Landform: Illinoian outwash terraces
Position on the landform: Backslopes

Map Unit Composition

Negley and similar components: 90 percent
Contrasting components:
Kendallville soils—5 percent
Milton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.5 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 6 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Outwash
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Loam
Average surface runoff: High
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.

• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: A-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

NnA—Nineveh silt loam, 0 to 2 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Nineveh and similar components: 90 percent
Contrasting components:
Eldean soils—5 percent
Ockley soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.9 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 11 to 23 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Loamy deposits over outwash material
Permeability: Moderate in the solum and very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• This soil is well suited to pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
• The sandy textures reduce the traction of wheeled forestry equipment.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

• The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2s
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

NnB—Nineveh silt loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Nineveh and similar components: 90 percent
Contrasting components:
Eldean soils—5 percent
Ockley soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.6 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 11 to 23 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Loamy deposits over outwash materials
Permeability: Moderate in the solum and very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Erosion control is needed when pastures are renovated.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
• The sandy textures reduce the traction of wheeled forestry equipment.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

• The excessive permeability limits the proper treatment of the effluent from septic systems in areas

of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

ObA—Ockley loam, 0 to 2 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Ockley and similar components: 85 percent
Contrasting components:
Eldean soils—5 percent
Nineveh soils—5 percent
Warsaw soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7.9 inches to a depth of 56 inches
Cation-exchange capacity in the surface layer: 3 to 15 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 72 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty material less than 20 inches thick over loamy outwash over stratified sand and gravel
Permeability: Moderate in the solum and very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

Pastureland

- This soil is well suited to pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

ObB—Ockley loam, 2 to 6 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Ockley and similar components: 90 percent
Contrasting components:
Eldean soils—5 percent
Nineveh soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.3 inches to a depth of 56 inches
Cation-exchange capacity in the surface layer: 3 to 15 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 72 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Silty material less than 20 inches thick over loamy outwash over stratified sand and gravel
Permeability: Moderate in the solum and very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

Pastureland

- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic tank absorption fields

- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

OmB—Omulga silt loam, 2 to 6 percent slopes

Setting

Landform: Proglacial lake (relict)
Position on the landform: Treads

Map Unit Composition

Omulga and similar components: 85 percent
Contrasting components:
Princeton soils—5 percent
Tyler soils—5 percent
Wyatt soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.6 inches to a depth of 27 inches

Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 36 inches to a fragipan
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess over colluvium over lacustrine deposits
Permeability: Moderate above the fragipan and slow in the fragipan
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

OmC2—Omulga silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Proglacial lake (relict)
Position on the landform: Risers

Map Unit Composition

Omulga and similar components: 90 percent
Contrasting components:
Tyler soils—5 percent
Wyatt soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.2 inches to a depth of 27 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 36 inches to a fragipan
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess over colluvium over lacustrine deposits
Permeability: Moderate above the fragipan and slow in the fragipan
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation

techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: F-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Or—Orrville silt loam, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Orrville and similar components: 90 percent
Contrasting components:
Sloan soils—5 percent
Tioga soils—5 percent

Soil Properties and Qualities

Available water capacity: About 9.1 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Apparent
Drainage class: Somewhat poorly drained
Frequency of flooding: Frequent
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Loamy alluvium
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The root system of winter grain crops may be damaged by frost action.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Winter grain crops are commonly not grown because of frequent flooding.
• Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.
• Subsurface drainage helps to lower the seasonal high water table.
• Small grain crops, such as winter wheat, are damaged by flooding in winter and spring.

Pastureland

• Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
• Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.
• Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
• The root system of plants may be damaged by frost action.
• Restricting grazing during wet periods can minimize compaction.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.

• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• Avoiding forestry activities in areas that are subject to long periods of flooding can help to prevent damage to equipment and to the environment.
• Species that tolerate flooding are preferred for planting.

Building site development

• The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.

Septic tank absorption fields

• This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-3
Prime farmland status: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

OwB—Otwell silt loam, 2 to 6 percent slopes

Setting

Landform: Proglacial lake (relict) fill
Position on the landform: Treads

Map Unit Composition

Otwell and similar components: 90 percent
Contrasting components:
Taggart soils—10 percent

Soil Properties and Qualities

Available water capacity: About 6.2 inches to a depth of 35 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 50 inches to a fragipan
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess over stratified lacustrine or outwash material or old mixed alluvium derived from weathered bedrock
Permeability: Very slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Pc—Patton silty clay loam, sandy substratum

Setting

Landform: Glacial lake (relict)
Position on the landform: Depressions and flats

Map Unit Composition

Patton and similar components: 90 percent
Contrasting components:
Henshaw soils—10 percent

Soil Properties and Qualities

Available water capacity: About 10.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 12 to 26 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Seasonal high water table: At the surface to 2 feet below the surface
Kind of water table: Apparent
Drainage class: Poorly drained
Flooding: None
Content of organic matter in the surface layer: 4 to 6 percent
Parent material: Silty glaciolacustrine deposits
Permeability: Moderate
Ponding duration: Long
Depth of ponding: 0.0 to 0.5 foot
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silty clay loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The root system of winter grain crops may be damaged by frost action.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• A combination of surface and subsurface drainage helps to remove excess water.
• Subsurface drainage helps to lower the seasonal high water table.
• Small grain crops, such as winter wheat, are damaged by ponding in the winter and spring.

Pastureland

• Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
• The root system of plants may be damaged by frost action.
• Restricting grazing during wet periods can minimize compaction.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.

• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
• Species that tolerate ponding are preferred for planting.

Building site development

• Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

Septic tank absorption fields

• Because of ponding and the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric soil

Pg—Peoga silt loam

Setting

Landform: Illinoian outwash terraces
Position on the landform: Depressions and flats

Map Unit Composition

Peoga and similar components: 85 percent
Contrasting components:
Libre soils—5 percent
Rainsboro soils—5 percent
Taggart soils—5 percent

Soil Properties and Qualities

Available water capacity: About 12.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 4 to 10 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Seasonal high water table: At the surface to 1 foot below the surface
Kind of water table: Apparent
Drainage class: Poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Alluvial or colluvial silty sediments of mixed origin derived from Illinoian drift
Permeability: Slow
Ponding duration: Long
Depth of ponding: 0.0 to 0.5 feet
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• The root system of winter grain crops may be damaged by frost action.
• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.
• Small grain crops, such as winter wheat, are damaged by ponding in the winter and spring.

Pastureland

• Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
• The root system of plants may be damaged by frost action.
• Restricting grazing during wet periods can minimize compaction.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.

- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.
- Species that tolerate ponding are preferred for planting.

Building site development

- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

Septic tank absorption fields

- Because of ponding and the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 3w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric soil

PkA—Pike silt loam, 0 to 2 percent slopes

Setting

Landform: Illinoian outwash terraces
Position on the landform: Treads

Map Unit Composition

Pike and similar components: 90 percent
Contrasting components:
Rainsboro soils—5 percent
Taggart soils—5 percent

Soil Properties and Qualities

Available water capacity: About 11.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess over Illinoian outwash material
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is well suited to building site development.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-6

Prime farmland status: Prime farmland
Hydric soil status: Not hydric

PkB—Pike silt loam, 2 to 6 percent slopes

Setting

Landform: Illinoian outwash terraces
Position on the landform: Treads

Map Unit Composition

Pike and similar components: 90 percent
Contrasting components:
Rainsboro soils—5 percent
Taggart soils—5 percent

Soil Properties and Qualities

Available water capacity: About 11.4 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 8 to 21 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess over Illinoian outwash material
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is well suited to building site development.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Pn—Pits, gravel

Setting

General landscape: Areas quarried for sand and gravel
Size of areas: 5 to 50 acres
Shape of areas: Irregular

Definition

- This map unit consists of open excavations from which gravel and sand have been removed.

Use and Management Considerations

- Onsite investigation is needed to determine the suitability for specific uses.

Po—Pits, quarry

Setting

General landscape: Areas quarried for limestone
Size of areas: 5 to 30 acres
Shape of areas: Irregular

Definition

• This map unit consists of areas from which dolomite has been quarried.

Use and Management Considerations

• Onsite investigation is needed to determine the suitability for specific uses.

Pp—Pope silt loam, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Pope and similar components: 85 percent
Contrasting components:
Spargus soils—10 percent
Tioga soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.7 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Frequent
Content of organic matter in the surface layer: 1 to 4 percent
Parent material: Alluvium
Permeability: Moderate or moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Winter grain crops are commonly not grown because of frequent flooding.
• Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.

Pastureland

• Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
• Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.

Septic tank absorption fields

• This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

PtB—Princeton sandy loam, 2 to 6 percent slopes

Setting

Landform: Loess hills
Position on the landform: Summits

Map Unit Composition

Princeton and similar components: 90 percent

Contrasting components:
Omulga soils—5 percent
Wyatt soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Eolian silts and fine sands
Permeability: Moderate in the solum and moderately rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Sandy loam
Average surface runoff: Low
Hazard of wind erosion: Moderate

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.

Pastureland

- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is well suited to building site development.

Septic tank absorption fields

- This soil is well suited to use as a site for septic tank absorption fields.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

PtC—Princeton sandy loam, 6 to 12 percent slopes

Setting

Landform: Loess hills
Position on the landform: Shoulders

Map Unit Composition

Princeton and similar components: 90 percent
Contrasting components:
Omulga soils—5 percent
Wyatt soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Eolian silts and fine sands
Permeability: Moderate in the solum and moderately rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Sandy loam
Average surface runoff: Medium
Hazard of wind erosion: Moderate

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

PtD—Princeton sandy loam, 12 to 20 percent slopes

Setting

Landform: Loess hills
Position on the landform: Shoulders

Map Unit Composition

Princeton and similar components: 90 percent
Contrasting components:
Wyatt soils—10 percent

Soil Properties and Qualities

Available water capacity: About 8.8 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Eolian silts and fine sands
Permeability: Moderate in the solum and moderately rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Sandy loam
Average surface runoff: Medium
Hazard of wind erosion: Moderate

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.

• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

RbA—Rainsboro silt loam, 0 to 2 percent slopes

Setting

Landform: Illinoian outwash terraces
Position on the landform: Treads

Map Unit Composition

Rainsboro and similar components: 90 percent
Contrasting components:
Pike soils—5 percent
Taggart soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.7 inches to a depth of 27 inches
Cation-exchange capacity in the surface layer: 10 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 36 inches to a fragipan
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian outwash material
Permeability: Moderate in the loess part, moderately slow in the fragipan, and moderately rapid in the substratum
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• The rooting depth of crops is restricted by dense soil material.

Pastureland

• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

RbB—Rainsboro silt loam, 2 to 6 percent slopes

Setting

Landform: Illinoian outwash terraces
Position on the landform: Treads

Map Unit Composition

Rainsboro and similar components: 90 percent
Contrasting components:
Pike soils—5 percent
Taggart soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.7 inches to a depth of 27 inches
Cation-exchange capacity in the surface layer: 10 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 36 inches to a fragipan
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian outwash material
Permeability: Moderate in the loess part, moderately slow in the fragipan, and moderately rapid in the substratum
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• The rooting depth of crops is restricted by dense soil material.

Pastureland

• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.

- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

RbC2—Rainsboro silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Illinoian outwash terraces
Position on the landform: Risers and shoulders

Map Unit Composition

Rainsboro and similar components: 90 percent
Contrasting components:
Negley soils—10 percent

Soil Properties and Qualities

Available water capacity: About 5.6 inches to a depth of 27 inches
Cation-exchange capacity in the surface layer: 10 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 36 inches to a fragipan
Depth to the seasonal high water table: 2.0 to 3.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian outwash material
Permeability: Moderate in the loess part, moderately slow in the fragipan, and moderately rapid in the substratum
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from

moisture stress because of the limited available water capacity.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• The rooting depth of crops is restricted by dense soil material.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: F-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

RcF—Rigley-Rock outcrop association, very steep

Setting

Landform: Hills
Position on the landform: Backslopes

Map Unit Composition

Rigley and similar components: 60 percent
Rock outcrop: 25 percent
Contrasting components:
Shelocta soils—10 percent
Brownsville soils—5 percent

Soil Properties and Qualities

Rigley

Available water capacity: About 6.9 inches to a depth of 60 inches

Cation-exchange capacity in the surface layer: 3 to 12 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 60 to 80 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 3.0 percent
Parent material: Colluvium
Permeability: Moderately rapid
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Sandy loam
Average surface runoff: Medium
Hazard of wind erosion: Moderate

Use and Management Considerations Affecting the Rigley Soil

Pastureland

- This soil is generally not suitable for pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The areas of Rock outcrop reduce the ease of excavation and increase the difficulty of constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

Local roads and streets

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

Interpretive Groups

Rigley

Land capability classification: 7e
Pasture and hayland suitability group: H-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

RdD2—Rodman gravelly loam, 12 to 20 percent slopes, eroded

Setting

Landform: Outwash terraces
Position on the landform: Risers

Map Unit Composition

Rodman and similar components: 90 percent
Contrasting components:
Fox soils—10 percent

Soil Properties and Qualities

Available water capacity: About 3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Excessively drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Calcareous, stratified gravelly coarse sand and sand
Permeability: Very rapid
Ponding: None
Potential for frost action: Low
Shrink-swell potential: Low
Texture of the surface layer: Gravelly loam
Average surface runoff: Very low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope and the possibility of ground-water pollution, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

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

Interpretive Groups

Land capability classification: 4s
Pasture and hayland suitability group: B-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

RdE2—Rodman gravelly loam, 20 to 35 percent slopes, eroded

Setting

Landform: Outwash terraces
Position on the landform: Risers

Map Unit Composition

Rodman and similar components: 90 percent
Contrasting components:
Alexandria soils—5 percent
Fox soils—5 percent

Soil Properties and Qualities

Available water capacity: About 3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Excessively drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Calcareous, stratified gravelly coarse sand and sand
Permeability: Very rapid
Ponding: None
Potential for frost action: Low
Shrink-swell potential: Low
Texture of the surface layer: Gravelly loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.

• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.

Forestland

• Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
• The sandy textures reduce the traction of wheeled forestry equipment.
• The slope increases the hazard of erosion on logging roads.
• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope and the possibility of ground-water pollution, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

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

Interpretive Groups

Land capability classification: 7s
Pasture and hayland suitability group: B-2
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Rn—Ross silt loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Ross and similar components: 85 percent
Contrasting components:
Gessie soils—5 percent
Sloan soils—5 percent
Stonelick soils—5 percent

Soil Properties and Qualities

Available water capacity: About 10.8 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 12 to 26 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 4 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 3 to 5 percent
Parent material: Loamy alluvium
Permeability: Moderate in the solum and moderately rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Controlling traffic can minimize soil compaction.
• Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.
• Small grain crops may be damaged by flooding in winter and spring.

Pastureland

• Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
• Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• Under normal weather conditions, this soil is subject

to occasional flooding. It is generally unsuited to building site development.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Ro—Rossburg silt loam, rarely flooded

Setting

Landform: Low stream terraces
Position on the landform: Treads

Map Unit Composition

Rossburg and similar components: 90 percent
Contrasting components:
Ross soils—5 percent
Stonelick soils—5 percent

Soil Properties and Qualities

Available water capacity: About 10.6 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 9 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Rare
Content of organic matter in the surface layer: 4 to 8 percent
Parent material: Loamy alluvium
Permeability: Moderate in the solum and moderately rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Controlling traffic can minimize soil compaction.

Pastureland

- This soil is well suited to pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under unusual weather conditions, this soil is subject to rare flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 1
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

RpA—Rossmoyne silt loam, 0 to 2 percent slopes

Setting

Landform: Illinoian till plains
Position on the landform: Summits

Map Unit Composition

Rossmoyne and similar components: 90 percent
Contrasting components:
Avonburg soils—10 percent

Soil Properties and Qualities

Available water capacity: About 4.5 inches to a depth of 24 inches
Cation-exchange capacity in the surface layer: 9 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 30 inches to a fragipan
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess and the underlying Illinoian till
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

RpB—Rossmoyne silt loam, 2 to 6 percent slopes

Setting

Landform: Illinoian till plains
Position on the landform: Summits

Map Unit Composition

Rossmoyne and similar components: 90 percent
Contrasting components:
Avonburg soils—10 percent

Soil Properties and Qualities

Available water capacity: About 4.6 inches to a depth of 24 inches
Cation-exchange capacity in the surface layer: 9 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 30 inches to a fragipan
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess and the underlying Illinoian till
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and

building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

RpC2—Rossmoyne silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Illinoian till plains
Position on the landform: Shoulders

Map Unit Composition

Rossmoyne and similar components: 90 percent
Contrasting components:
Avonburg soils—5 percent
Cana soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.4 inches to a depth of 24 inches
Cation-exchange capacity in the surface layer: 9 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 30 inches to a fragipan
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess and the underlying Illinoian till
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: F-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

RsB—Rossmoyne-Cana complex, 2 to 6 percent slopes

Setting

Landform: Illinoian till plains
Position on the landform: Summits

Map Unit Composition

Rossmoyne and similar components: 50 percent
Cana and similar components: 40 percent
Contrasting components:
Avonburg soils—10 percent

Soil Properties and Qualities

Rossmoyne

Available water capacity: About 4.2 inches to a depth of 24 inches
Cation-exchange capacity in the surface layer: 9 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 30 inches to a fragipan
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess and the underlying Illinoian till
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam

Average surface runoff: Low
Hazard of wind erosion: Slight

Cana

Available water capacity: About 7.8 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess and the underlying Illinoian till over clayey residuum
Permeability: Moderate or moderately slow in the upper part and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Rossmoyne Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Use and Management Considerations Affecting the Cana Soil

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: Rossmoyne—F-3; Cana—A-6
Prime farmland status: Prime farmland
Hydric soil status: Rossmoyne—not hydric; Cana—not hydric

RsC2—Rossmoyne-Cana complex, 6 to 12 percent slopes, eroded

Setting

Landform: Illinoian till plains
Position on the landform: Shoulders

Map Unit Composition

Rossmoyne and similar components: 50 percent
Cana and similar components: 40 percent
Contrasting components:
Avonburg soils—10 percent

Soil Properties and Qualities

Rossmoyne

Available water capacity: About 4.3 inches to a depth of 24 inches

Cation-exchange capacity in the surface layer: 9 to 22 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 30 inches to a fragipan
Depth to the seasonal high water table: 1.0 to 2.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess and the underlying Illinoian till
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Cana

Available water capacity: About 7.7 inches to a depth of 50 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 40 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess and the underlying Illinoian till over clayey residuum
Permeability: Moderate or moderately slow in the upper part and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Rossmoyne Soil

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The seasonal high water table limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting the Cana Soil

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.

• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: Rossmoyne—F-3; Cana—A-6
Prime farmland status: Not prime farmland
Hydric soil status: Rossmoyne—not hydric; Cana—not hydric

SfD—Shelocta silt loam, 12 to 20 percent slopes

Setting

Landform: Hills
Position on the landform: Footslopes

Map Unit Composition

Shelocta and similar components: 90 percent
Contrasting components:
Cruze soils—5 percent
Latham soils—5 percent

Soil Properties and Qualities

Available water capacity: About 9.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 60 to 80 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 5.0 percent
Parent material: Colluvium
Permeability: Moderate
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

Local roads and streets

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

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

SgF—Shelocta-Brownsville association, very steep

Setting

Landform: Hills
Position on the landform: Backslopes (fig. 13)

Map Unit Composition

Shelocta and similar components: 50 percent
Brownsville and similar components: 35 percent
Contrasting components:
Cruze soils—5 percent
Rigley soils—5 percent
Weikert soils—5 percent

Soil Properties and Qualities

Shelocta

Available water capacity: About 9.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 60 to 80 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 5.0 percent
Parent material: Colluvium
Permeability: Moderate
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Brownsville

Available water capacity: About 4.4 inches to a depth of 56 inches
Cation-exchange capacity in the surface layer: 8 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 72 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Colluvium and residuum
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Channery silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Shelocta Soil

Pastureland

• This soil is generally not suitable for pasture because of the slope.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The slope increases the hazard of erosion on logging roads.

Figure 13.—A typical area of Shelocta-Brownsville association, very steep. Gilpin soils are on the ridgetops.

- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

Local roads and streets

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

Use and Management Considerations Affecting the Brownsville Soil

Pastureland

- This soil is generally not suitable for pasture because of the slope.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 7e
Pasture and hayland suitability group: Shelocta—H-1; Brownsville—H-1
Prime farmland status: Not prime farmland
Hydric soil status: Shelocta—not hydric; Brownsville—not hydric

ShE—Shelocta-Cruze-Weikert association, steep

Setting

Landform: Hills
Position on the landform: Backslopes

Map Unit Composition

Shelocta and similar components: 40 percent
Cruze and similar components: 30 percent
Weikert and similar components: 20 percent
Contrasting components:
Brownsville soils—10 percent

Soil Properties and Qualities

Shelocta

Available water capacity: About 9.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 60 to 80 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 5.0 percent
Parent material: Colluvium
Permeability: Moderate
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Cruze

Available water capacity: About 7.5 inches to a depth of 54 inches
Cation-exchange capacity in the surface layer: 8 to 22 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 48 to 60 inches to bedrock (paralithic)
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None

Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Colluvium and residuum
Permeability: Slow
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Very high
Hazard of wind erosion: Slight

Weikert

Available water capacity: About 1.7 inches to a depth of 15 inches
Cation-exchange capacity in the surface layer: 6 to 20 milliequivalents per 100 grams
Depth class: Shallow
Depth to root-restrictive feature: 10 to 20 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Somewhat excessively drained
Flooding: None
Content of organic matter in the surface layer: 1 to 4 percent
Parent material: Residuum
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Shelocta Soil

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

Local roads and streets

- Because of the slope, designing local roads and streets is difficult (fig. 14).

Use and Management Considerations Affecting the Cruze Soil

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Figure 14.—The slope can be a problem if roads and streets are constructed in areas of Shelocta-Cruze-Weikert association, steep. This area is in an exposure of black Ohio shale along Paint Creek.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting the Weikert Soil

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- The rooting depth of plants may be restricted by bedrock.

Forestland

- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The depth to bedrock and hardness of the bedrock greatly reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- The limited depth to soft bedrock affects the ease of excavation and grading.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: Shelocta—A-3; Cruze—A-3; Weikert—E-2
Prime farmland status: Not prime farmland
Hydric soil status: Shelocta—not hydric; Cruze—not hydric; Weikert—not hydric

SkE—Shelocta-Rigley association, steep

Setting

Landform: Hills
Position on the landform: Backslopes

Map Unit Composition

Shelocta and similar components: 50 percent
Rigley and similar components: 30 percent
Contrasting components:
Brownsville soils—10 percent
Gilpin soils—5 percent
Latham soils—5 percent

Soil Properties and Qualities

Shelocta

Available water capacity: About 9.2 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 16 milliequivalents per 100 grams
Depth class: Deep
Depth to root-restrictive feature: 60 to 80 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 5.0 percent
Parent material: Colluvium
Permeability: Moderate
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: High
Hazard of wind erosion: Slight

Rigley

Available water capacity: About 7.0 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 3 to 12 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 60 to 80 inches to bedrock (lithic)
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 3.0 percent
Parent material: Colluvium
Permeability: Moderately rapid
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Gravelly fine sandy loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations Affecting the Shelocta Soil

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- The slope may restrict the use of some farm equipment.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The slope increases the hazard of erosion on logging roads.
- Because of the slope, specialized forestry equipment is required.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

Local roads and streets

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

Use and Management Considerations Affecting the Rigley Soil

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• The slope increases the hazard of erosion on logging roads.
• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.

Local roads and streets

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

Interpretive Groups

Land capability classification: 7e
Pasture and hayland suitability group: Shelocta—A-3; Rigley—A-3
Prime farmland status: Not prime farmland
Hydric soil status: Shelocta—not hydric; Rigley—not hydric

Sp—Skidmore cobbly silt loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Skidmore and similar components: 90 percent
Contrasting components:
Clifty soils—5 percent
Spargus soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 40 to 80 inches to bedrock (lithic)
Depth to the seasonal high water table: 3 to 4 feet
Kind of water table: Apparent
Drainage class: Well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Alluvium
Permeability: Moderately rapid
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Cobbly silt loam

Average surface runoff: Negligible
Hazard of wind erosion: Moderate

Use and Management Considerations

Cropland

- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: B-3
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

St—Sloan silty clay loam, occasionally flooded

Setting

Landform: Slight depressions on flood plains

Map Unit Composition

Sloan and similar components: 80 percent
Contrasting components:
Gessie soils—5 percent
Haymond soils—5 percent
Ross soils—5 percent
Stonelick soils—5 percent

Soil Properties and Qualities

Available water capacity: About 10.8 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 19 to 29 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Seasonal high water table: At the surface to 1 foot below the surface
Kind of water table: Apparent
Drainage class: Very poorly drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 3 to 6 percent
Parent material: Alluvium
Permeability: Moderate
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silty clay loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- Because of the seasonal high water table and the flooding, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 3w
Pasture and hayland suitability group: C-3
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric soil

SuB—Spargus channery silt loam, 2 to 6 percent slopes

Setting

Landform: Alluvial fan
Position on the landform: Alluvial fans

Map Unit Composition

Spargus and similar components: 85 percent
Contrasting components:
Clifty soils—5 percent
Pope soils—5 percent
Skidmore soils—5 percent

Soil Properties and Qualities

Available water capacity: About 8.3 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 5 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 4 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Frequency of flooding: Very rare
Content of organic matter in the surface layer: 0.5 to 3.0 percent
Parent material: Laterally spread deposits from hillsides (mixture of water-worked colluvium

derived from shale, siltstone, and sandstone and old alluvium)
Permeability: Moderate
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Channery silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.

Pastureland

- Erosion control is needed when pastures are renovated.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to very rare flooding (flash flooding). The flooding may result in physical damage and costly repairs to buildings.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Flash flooding can cause damage to some components of septic systems.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil limits the absorption and proper treatment of the effluent from septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2e
Pasture and hayland suitability group: A-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Sv—Stonelick loam, occasionally flooded

Setting

Landform: Flood plains

Map Unit Composition

Stonelick and similar components: 85 percent
Contrasting components:
Ross soils—5 percent
Sloan soils—5 percent
Huntington soils—3 percent
Rossburg soils—2 percent

Soil Properties and Qualities

Available water capacity: About 7 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 6 to 19 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Occasional
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Alluvium
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Winter grain crops are commonly not grown because of the occasional flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Under normal weather conditions, this soil is subject to occasional flooding. The flooding may result in physical damage and costly repairs to buildings. This soil is generally unsuited to homesite development. Special design of some structures, such as farm outbuildings, may be needed to prevent the damage caused by flooding.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Sw—Stonelick fine sandy loam, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Stonelick and similar components: 90 percent
Contrasting components:
Ross soils—5 percent
Sloan soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6.6 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 4 to 15 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Frequency of flooding: Frequent
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Alluvium
Permeability: Moderately rapid
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Fine sandy loam
Average surface runoff: Negligible
Hazard of wind erosion: Moderate

Use and Management Considerations

Cropland

- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Winter grain crops are commonly not grown because of the frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 3w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

TbA—Taggart silt loam, 0 to 2 percent slopes

Setting

Landform: Illinoian outwash terraces
Position on the landform: Treads

Map Unit Composition

Taggart and similar components: 85 percent
Contrasting components:
Peoga soils—5 percent
Rainsboro soils—5 percent
Pike soils—3 percent
Libre soils—2 percent

Soil Properties and Qualities

Available water capacity: About 11.9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 6 to 18 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 0.5 foot to 2.0 feet
Kind of water table: Apparent
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over Illinoian outwash material
Permeability: Moderate in the upper part of the solum and slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.

• The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

ThC3—Thrifton clay loam, 6 to 12 percent slopes, severely eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Shoulders

Map Unit Composition

Thrifton and similar components: 85 percent
Contrasting components:
Miamian soils—10 percent
Crosby soils—5 percent

Soil Properties and Qualities

Available water capacity: About 2.1 inches to a depth of 15 inches
Cation-exchange capacity in the surface layer: 14 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 10 to 20 inches to dense material
Depth to the seasonal high water table: 1.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Till
Permeability: Moderately slow in the solum and slow in the underlying till
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Clay loam
Average surface runoff: High
Hazard of wind erosion: Slight
Distinctive soil property: Erosion has removed most of the solum.

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• Controlling traffic can minimize soil compaction.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.

- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: B-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

ThD3—Thrifton clay loam, 12 to 20 percent slopes, severely eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Footslopes

Map Unit Composition

Thrifton and similar components: 85 percent
Contrasting components:
Miamian soils—10 percent
Crosby soils—5 percent

Soil Properties and Qualities

Available water capacity: About 2.1 inches to a depth of 15 inches
Cation-exchange capacity in the surface layer: 14 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 10 to 20 inches to dense material
Depth to the seasonal high water table: 1.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent

Parent material: Till
Permeability: Moderately slow in the solum and slow in the underlying till
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Clay loam
Average surface runoff: High
Hazard of wind erosion: Slight
Distinctive soil property: Erosion has removed most of the solum.

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- The slope increases the hazard of erosion on logging roads.
- The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

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

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: B-1
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

ThE3—Thrifton clay loam, 20 to 35 percent slopes, severely eroded

Setting

Landform: Wisconsinan till plains
Position on the landform: Backslopes

Map Unit Composition

Thrifton and similar components: 90 percent
Contrasting components:
Miamian soils—10 percent

Soil Properties and Qualities

Available water capacity: About 2 inches to a depth of 15 inches
Cation-exchange capacity in the surface layer: 14 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 10 to 20 inches to dense material
Depth to the seasonal high water table: 1.5 to 3.5 feet
Kind of water table: Perched
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Till
Permeability: Moderately slow in the solum and slow in the underlying till
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Moderate
Texture of the surface layer: Clay loam
Average surface runoff: Very high
Hazard of wind erosion: Slight
Distinctive soil property: Erosion has removed most of the solum.

Use and Management Considerations

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• The slope may restrict the use of some farm equipment.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• Because of the slope, specialized forestry equipment is required.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures

may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 7e
Pasture and hayland suitability group: B-2
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

TnA—Tilsit silt loam, 0 to 2 percent slopes

Setting

Landform: Hills
Position on the landform: Summits

Map Unit Composition

Tilsit and similar components: 90 percent
Contrasting components:
Coolville soils—5 percent
Gilpin soils—5 percent

Soil Properties and Qualities

Available water capacity: About 4.3 inches to a depth of 23 inches
Cation-exchange capacity in the surface layer: 10 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 28 inches to a fragipan
Depth to the seasonal high water table: 1.5 to 2.5 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over residuum
Permeability: Moderate above the fragipan and slow in the fragipan
Ponding: None
Potential for frost action: None
Shrink-swell potential: Low
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

- The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: F-3
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

To—Tioga fine sandy loam, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Tioga and similar components: 90 percent
Contrasting components:
Pope soils—10 percent

Soil Properties and Qualities

Available water capacity: About 7.8 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 12 to 28 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 3 to 6 feet
Kind of water table: Apparent
Drainage class: Well drained
Frequency of flooding: Frequent
Content of organic matter in the surface layer: 2 to 6 percent
Parent material: Loamy alluvium
Permeability: Moderately rapid in the solum and rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Fine sandy loam
Average surface runoff: Negligible
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Winter grain crops are commonly not grown because of frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue caused by flooding are needed.

Pastureland

- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood may affect the palatability of the plants and thus reduce forage intake by the grazing animal.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.

Septic tank absorption fields

- This soil is generally unsuited to use as a site for septic tank absorption fields. The flooding greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: A-5
Prime farmland status: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

TyA—Tyler silt loam, 0 to 2 percent slopes

Setting

Landform: Preglacial valley fill
Position on the landform: Treads

Map Unit Composition

Tyler and similar components: 90 percent
Contrasting components:
Omulga soils—5 percent
Wyatt soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.2 inches to a depth of 39 inches
Cation-exchange capacity in the surface layer: 10 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 18 to 60 inches to a fragipan
Depth to the seasonal high water table: 0.5 foot to 2.0 feet
Kind of water table: Perched
Drainage class: Somewhat poorly drained
Flooding: None
Content of organic matter in the surface layer: 2 to 4 percent
Parent material: Loess overlying silty colluvium or old alluvium
Permeability: Moderately slow above the fragipan, slow or very slow in the fragipan, and moderately slow in the substratum
Ponding: None
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Silt loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.

• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 3w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

Ud—Udorthents, loamy

Setting

Size of areas: 5 to 100 acres
Shape of areas: Irregular

Definition

• This map unit consists of areas that have been cut and filled.

Use and Management Considerations

• Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: None assigned
Pasture and hayland suitability group: None assigned
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

W—Water

Definition

• This map unit consists of bodies of water ranging in size from 1 to 5 acres.

WcA—Warsaw loam, 0 to 2 percent slopes

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Warsaw and similar components: 90 percent
Contrasting components:
Eldean soils—5 percent
Ockley soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6.4 inches to a depth of 30 inches
Cation-exchange capacity in the surface layer: 10 to 25 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Depth to the seasonal high water table: More than 6 feet
Drainage class: Well drained
Flooding: None
Content of organic matter in the surface layer: 2 to 5 percent
Parent material: Loamy material over outwash material
Permeability: Moderate in the solum and very rapid in the substratum
Ponding: None
Potential for frost action: Moderate
Shrink-swell potential: Low
Texture of the surface layer: Loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.

Pastureland

• This soil is well suited to pasture.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
• The sandy textures reduce the traction of wheeled forestry equipment.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is well suited to building site development.

Septic tank absorption fields

• This soil is generally unsuited to use as a site for

septic tank absorption fields. The excessive permeability limits the proper treatment of the effluent from septic systems. The poorly treated effluent may pollute the water table in the area of the absorption field.

Local roads and streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2s
Pasture and hayland suitability group: A-1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Wk—Westland clay loam

Setting

Landform: Wisconsinan outwash terraces
Position on the landform: Treads

Map Unit Composition

Westland and similar components: 85 percent
Contrasting components:
Adrian soils—5 percent
Carlisle soils—5 percent
Kinn soils—5 percent

Soil Properties and Qualities

Available water capacity: About 9 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 15 to 30 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Kind of water table: Apparent
Drainage class: Very poorly drained
Flooding: None
Content of organic matter in the surface layer: 2 to 6 percent
Parent material: Silty material over loamy glacial outwash material
Permeability: Moderate in the solum and very rapid in the underlying material
Ponding duration: Brief
Potential for frost action: High
Shrink-swell potential: Moderate
Texture of the surface layer: Clay loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of ground-water contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- A combination of surface and subsurface drainage helps to remove excess water.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root system of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Sandy soils may have a limited available water capacity. The resulting droughty conditions could increase the seedling mortality rate.
- The sandy textures reduce the traction of wheeled forestry equipment.
- The seasonal high water table can inhibit the growth of some species of seedlings and limits the use of forestry equipment to the dry summer months or to periods when the soil is frozen.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

Septic tank absorption fields

- Because of ponding and the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local roads and streets

- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Interpretive Groups

Land capability classification: 2w
Pasture and hayland suitability group: C-1
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric soil

WtB—Wyatt silt loam, 2 to 6 percent slopes

Setting

Landform: Relict lacustrine terraces
Position on the landform: Treads

Map Unit Composition

Wyatt and similar components: 85 percent
Contrasting components:
Omulga soils—5 percent
Princeton soils—5 percent
Tyler soils—5 percent

Soil Properties and Qualities

Available water capacity: About 7 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 12 to 20 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 1 to 3 percent
Parent material: Loess over lacustrine deposits
Permeability: Moderate or moderately slow in the upper part of the solum and very slow or slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silt loam
Average surface runoff: Low
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

- Erosion control is needed when pastures are renovated.
- The root system of plants may be damaged by frost action.

Forestland

- Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
- Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
- Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

- This soil is poorly suited to building site development.
- Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.

• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.

Interpretive Groups

Land capability classification: 3e
Pasture and hayland suitability group: A-6
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

WyC2—Wyatt silty clay loam, 6 to 12 percent slopes, eroded

Setting

Landform: Relict lacustrine terraces
Position on the landform: Risers and toeslopes

Map Unit Composition

Wyatt and similar components: 85 percent
Contrasting components:
Omulga soils—5 percent
Princeton soils—5 percent
Tyler soils—5 percent

Soil Properties and Qualities

Available water capacity: About 6.8 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess over lacustrine deposits
Permeability: Moderate or moderately slow in the upper part of the solum and very slow or slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silty clay loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• The rooting depth of crops may be restricted by the high clay content.
• Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.

• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• The seasonal high water table reduces the bearing capacity of this soil.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 4e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

WyD2—Wyatt silty clay loam, 12 to 18 percent slopes, eroded

Setting

Landform: Relict lacustrine terraces
Position on the landform: Risers and footslopes

Map Unit Composition

Wyatt and similar components: 90 percent
Contrasting components:
Omulga soils—5 percent
Princeton soils—5 percent

Soil Properties and Qualities

Available water capacity: About 5.7 inches to a depth of 60 inches
Cation-exchange capacity in the surface layer: 14 to 24 milliequivalents per 100 grams
Depth class: Very deep
Depth to root-restrictive feature: More than 80 inches
Depth to the seasonal high water table: 1.5 to 3.0 feet
Kind of water table: Perched
Drainage class: Moderately well drained
Flooding: None
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Parent material: Loess over lacustrine deposits
Permeability: Moderate or moderately slow in the upper part of the solum and very slow or slow in the lower part
Ponding: None
Potential for frost action: High
Shrink-swell potential: High
Texture of the surface layer: Silty clay loam
Average surface runoff: Medium
Hazard of wind erosion: Slight

Use and Management Considerations

Cropland

• Grassed waterways can be used in some areas to slow and direct the movement of water and reduce the hazard of erosion.
• Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
• Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.
• Incorporating crop residue or other organic material into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
• The root system of winter grain crops may be damaged by frost action.
• Controlling traffic can minimize soil compaction.
• The rooting depth of crops may be restricted by the high clay content.
• Maintaining or increasing the content of organic

matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
• Subsurface drainage helps to lower the seasonal high water table.

Pastureland

• Avoiding overgrazing can reduce the hazard of erosion.
• Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
• Erosion control is needed when pastures are renovated.
• Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
• Using a system of conservation tillage when pastures are renovated conserves soil moisture.
• This soil provides poor summer pasture.
• The root system of plants may be damaged by frost action.

Forestland

• Soil moisture encourages the growth of competing vegetation. This growth can be controlled by mechanical or chemical methods.
• Because of the high clay content, this soil is sticky when wet and very firm when dry. Planting at the proper moisture content and taking special care to ensure good soil-root contact can lower the seedling mortality rate.
• The slope increases the hazard of erosion on logging roads.
• The slope creates a safety hazard affecting the use of forestry equipment. The equipment should be operated only on the contour.
• Unless the use of forestry equipment is restricted to periods when the soil is dry or frozen, low strength can result in the formation of ruts.

Building site development

• This soil is poorly suited to building site development.
• Shrinking and swelling of the soil may crack basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
• The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
• Because of the seasonal high water table, the period when excavations can be made may be restricted and a higher degree of construction site development and building maintenance may be needed. Special design of structures is needed to prevent the damage caused by wetness.

Septic tank absorption fields

• Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
• The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
• The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local roads and streets

• Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
• Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
• Because of the slope, designing local roads and streets is difficult.

Interpretive Groups

Land capability classification: 6e
Pasture and hayland suitability group: A-6
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

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 sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

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 some of 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 well suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Ohio State University Extension.

Crops

Douglas Pauley, district conservationist, Natural Resources Conservation Service, helped prepare this section.

In 1992, about 105,400 acres in Ross County was used for row crops, primarily corn and soybeans; 18,600 acres was used for wheat; and 14,000 acres was used for hay. About 22,368 acres was pasture (Ramey and others, 1993). Yearly fluctuations occur in the acreage devoted to each specific crop as a result of variations in the market value of each product.

The potential for increased food production is good in the county. Production can be increased by extending the latest crop production technology to all of the cropland in the county. This soil survey can greatly facilitate the application of such technology.

The major management needs in areas of the county used as cropland are measures that control erosion, measures that improve drainage, and measures that improve or maintain fertility and tilth.

Erosion is a hazard on all of the gently sloping to very steep soils in the county. It reduces soil productivity and results in the deterioration of tilth. It also increases the amount of sediment and pesticides that enter waterways and streams. The erodibility of a particular soil depends in part on the physical properties of the soil. For example, Omulga soils have a higher content of silt in the surface layer than the Miamian soils and thus are more susceptible to erosion, even though the Miamian soils are on comparable slopes and support a similar vegetative cover. The hazard of erosion on all soils increases as the percentage of slope increases. In eroded spots, preparing a seedbed and tilling are difficult because part of the original friable surface layer has been removed. Such spots are common in areas of the eroded Markland and Miamian soils.

A protective plant cover increases the rate of water infiltration and reduces the runoff rate and the hazard of erosion. Keeping a plant cover on the soil for extended periods can hold soil losses to an amount that will not reduce the productivity of the soil. Including grasses and legumes in the cropping sequence reduces the risk of erosion, increases the supply of nitrogen, and improves tilth.

Soil loss also can be reduced by using tillage methods that leave all of the crop residue on the surface throughout the year or that incorporate part of the residue into the soil. If these methods are applied, a high level of management is needed to control weeds and insects. These methods are best suited to well drained and moderately well drained soils. A drainage system is needed if no-till farming or another system of conservation tillage that leaves crop residue on the surface is applied in areas of somewhat poorly drained to very poorly drained soils.

Other erosion-control measures include grassed waterways, contour farming or contour stripcropping, and diversions. Grassed waterways are natural or constructed surface drains protected by a cover of grasses. Natural drainageways are the best sites for these waterways because they commonly require a minimum of shaping. The waterways should be wide and flat, so that they can be easily crossed by farm machinery. Diversions reduce the length of slopes and thus help to control runoff and erosion. They are most practical in areas of deep, well drained soils that have smooth slopes (USDA/NRCS, National Engineering Handbook; USDA, 1971 and 1984; USDA/SCS, 1987).

Information about the design of erosion-control practices for each kind of soil is available in the local office of the Natural Resources Conservation Service.

Soil drainage is a major management need in areas of McGary, Peoga, Euclid, Crosby, Kokomo, and Patton soils if they are used for cropland. Some soils are naturally so wet that the production of the crops common to the area is generally not possible without artificial drainage. Surface and subsurface drains are used to improve drainage. Finding adequate outlets for subsurface drainage systems is difficult in many areas of Peoga and Patton soils.

Protection from flooding is needed in areas of soils on flood plains, such as Gessie, Ross, and Tioga soils. Levees are used in some areas to protect these soils from streambank overflow.

Natural soil fertility is low or medium in many of the soils on uplands in the county. The soils on the flood plains along Paint Creek and the Scioto River, such as Gessie and Ross soils, are slightly acid to moderately alkaline in the root zone. These soils have a naturally higher content of plant nutrients than most of the soils on uplands. The soils on the flood plains formed in alluvium washed in from areas of limestone or of till that has a high content of lime.

Many of the soils on uplands are naturally acid in the surface layer. Applications of ground limestone are needed to raise the pH level sufficiently for good production of alfalfa and other crops that grow well on nearly neutral soils. The supply of available phosphorus and potassium is naturally low in most of these soils. On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields. Assistance in determining the kinds and amounts of lime and fertilizer to be applied can be obtained from the Ohio State University Extension.

Soil tilth is an important factor affecting the germination of seeds and the infiltration of water into the soil. Soils that have good tilth are friable and porous.

Most of the soils used for crops in the county have a light-colored surface layer of silt loam that has a moderate or moderately low content of organic matter. Generally, the structure of these soils is weak. A surface crust forms during periods of heavy rainfall in areas where conventional tillage methods are used. The crust is hard when dry and is nearly impervious to water. As a result, it reduces the rate of water infiltration and increases the runoff rate. Using no-till farming or including grasses and legumes in a crop rotation can improve the rate of water infiltration. Regular additions of crop residue, barnyard manure, or other organic material can improve soil structure and minimize crusting.

Fall plowing is generally not a good means of improving the tilth of soils that have a light-colored surface layer. If these soils are plowed in the fall, a crust forms in winter and spring. Many soils that are plowed in the fall are nearly as dense and hard at planting time as they were before they were plowed.

Fall plowing is common in areas of Eldean, Ockley, Kendallville, and Gessie soils on the flood plains and terraces along the Scioto River and in areas of Miamian, Crosby, and Kokomo soils on the till plain. Because of the hazard of erosion, soils that have slopes of more than 3 percent should not be plowed in the fall. Wind erosion is a hazard in all areas that are plowed in the fall, including nearly level areas.

Some of the soils in the county do not dry out quickly enough for plowing early in spring. Commonly, the fields are plowed in the spring before optimum moisture conditions are reached. This untimely plowing results in hard clods in the surface layer and zones of compacted soil in the subsurface layers.

Cropland Limitations and Hazards

The management concerns affecting the use of the detailed soil map units in the survey area for crops are shown in table 5. The main concerns in managing nonirrigated cropland are controlling flooding, controlling wind erosion and water erosion, removing excess water, minimizing surface crusting and compaction, conserving moisture, and maintaining soil tilth, fertility, and the content of organic matter.

Generally, a combination of several practices is needed to control *wind erosion* and *water erosion*. Conservation tillage, stripcropping, field windbreaks, tall grass barriers, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to prevent excessive soil loss.

Surface drainage, subsurface drainage, or both can be used to remove *excess water*, to lower the *seasonal high water table*, and to help control *ponding.*

A *surface crust* forms in tilled areas after hard rains. This crust may inhibit seedling emergence. Regular additions of crop residue, manure, or other organic materials can improve soil structure and minimize crusting.

Tilling within the proper range in moisture content minimizes *surface compaction*.

Conserving moisture primarily involves reducing the evaporation and runoff rates and increasing the rate of water infiltration. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture.

Measures that are effective in maintaining *soil tilth, fertility,* and the *content of organic matter* include applying fertilizer, both organic and inorganic, including manure; incorporating crop residue or green manure crops into the soil; and using proper crop rotations. Controlling erosion helps to prevent the loss of organic matter and plant nutrients and thus helps to maintain productivity, although the level of fertility can be reduced even in areas where erosion is controlled. All soils used for nonirrigated crops respond well to applications of fertilizer.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are *depth to bedrock, flooding, ponding,* and *slope.*

Depth to bedrock.—Rooting depth and available moisture may be limited by bedrock within a depth of 40 inches.

Flooding.—Flooding can damage winter grain and forage crops. A tillage method that partly covers crop residue and leaves a rough or ridged surface helps to prevent the removal of crop residue by floodwater. Tilling and planting should be delayed in the spring until flooding is no longer a hazard.

Ponding.—Surface drains helps to remove excess surface water and minimize the damage caused by ponding.

Slope.—In areas where the slope is more than 15 percent, water erosion and wind erosion may be accelerated unless conservation farming practices are applied. The selection of crops and the use of equipment are limited. Cultivation may be restricted.

Additional limitations and hazards are as follows:

High clay content.—The average content of clay in the subsoil is more than 35 percent. Species that can

tolerate droughty conditions should be selected for planting.

Root-restrictive layer.—Root penetration may be severely inhibited because of the physical and chemical characteristics of the soil. Species that have a relatively shallow rooting system should be selected for planting.

Potential for ground-water pollution.—The potential for ground-water pollution is a concern in areas of soils that have excessive permeability, have hard bedrock within the profile, or have a seasonal high water table.

Limited available water capacity, fair tilth, poor tilth, restricted permeability, and *surface crusting.*—These limitations can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems.

Frost action.—Frost heaving can damage deep-rooted legumes and some small grain crops.

Clodding.—Clods may inhibit germination, reduce the rate of water infiltration, and increase the runoff rate.

Sandy layers.—Deep leaching of nutrients and pesticides may result from sandy layers. Crops generally respond better to smaller, more frequent applications of fertilizer and lime than to one large application.

Stony surface.—Stones or boulders on the surface or in the surface layer can hinder normal tillage unless they are removed.

Following is an explanation of the criteria used to determine the limitations or hazards affecting cropland.

Depth to bedrock.—Bedrock is within a depth of 40 inches.

Easily eroded.—The K factor of the surface layer multiplied by the upper slope limit is more than 2.

Frequent flooding.—The soil is subject to frequent flooding.

Occasional flooding.—The soil is subject to occasional flooding.

Rare flooding.—The soil is subject to rare flooding.

Limited available water capacity.—The available water capacity calculated to a depth of 60 inches or to a root-limiting layer is 6 inches or less.

Ponding.—The soil is ponded for at least brief periods.

Potential for ground-water pollution.—The soil has an apparent water table within a depth of 4 feet or has hard bedrock within the profile, or permeability is more than 6 inches per hour.

Poor tilth.—The soil is severely eroded, has less than 1 percent organic matter in the surface layer, or has more than 35 percent clay in the surface layer.

Fair tilth.—The soil has a surface layer of silty clay loam.

Restricted permeability.—Permeability is 0.06 inch per hour or less within the soil profile.

High clay content.—The average content of clay in the subsoil is more than 35 percent.

Root-restrictive layer.—Root penetration may be severely inhibited because of the physical or chemical characteristics of the soil.

Sandy layers.—The family particle size is sandy, sandy or sandy-skeletal, sandy over loamy, sandy over clayey, sandy-skeletal, sandy-skeletal over clayey, or sandy-skeletal over loamy; or the subgroup is Arenic or Psammentic; or the suborder is Psamments.

Seasonal high water table.—The lower limit of the seasonal high water table is less than 1.5 feet.

Slope.—The slope is more than 15 percent.

Wind erosion.—The wind erodibility index multiplied by the selected high C factor for the survey area and then divided by the T factor is more than 8.

Erosion hazard.—Because the slope is more than 2 percent, water erosion is a hazard.

Surface crusting.—The content of organic matter in the surface layer is less than or equal to 3 percent, and the texture is silt loam, loam, or silty clay loam.

Surface compaction.—The soil has a surface layer of silt loam, silty clay loam, or silty clay.

Clodding.—The relative value of the total clay in the surface layer is greater than 32 percent.

Stony surface.—The texture of the surface layer includes a bouldery, very bouldery, extremely bouldery, stony, very stony, extremely stony, cobbly, very cobbly, or extremely cobbly modifier.

Frost action.—The soil has a high potential for frost action.

Part of the surface layer removed by erosion.—The surface layer is moderately eroded.

Most of the surface layer removed by erosion.—The surface layer is severely eroded.

Crop Yield Index

Table 6 is the crop yield index for Ross County. The yield index reflects the yield potential of a soil in relation to other soils in the county. It is based on the most productive soil (Rossburg), which is assigned a rating of 100. The other soils are ranked against this standard.

The yields used to calculate the index values are based on the use of good management practices.

The estimated yields can be calculated by using the

yield index number as a percentage and multiplying it by 160 for corn, 55 for soybeans, or 65 for winter wheat. For example, to calculate the estimated yield of corn for map unit CgA, multiply the index number given for corn, as a percentage (.81), by 160. The result is an estimated 130 bushels of corn.

Current yield data and additional information on calculating estimated yields are available from the local office of the Natural Resources Conservation Service or the Ohio State University Extension.

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 (USDA/SCS, 1961). *Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to pasture, 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, forestland, wildlife habitat, or recreation.

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

The acreage of soils in each capability class and subclass is shown in table 7. The capability classification of map units in this survey area is given in the section “Detailed Soil Map Units” and under the heading “Interpretive Groups.”

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.

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.

About 205,481 acres, or about 46 percent of the survey area, meets the requirements for prime farmland.

The map units in the survey area that are considered prime farmland are listed in table 8. 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."

Pasture and Hayland Interpretations

Douglas Pauley, district conservationist, Natural Resources Conservation Service, helped prepare this section.

Approximately 5 percent of Ross County is currently used as pasture and hayland. About 2 percent could be used as pasture and hayland but is idle land that is reverting to brush and young trees (Ramey and others, 1993). Most of the acreage used for pasture and hay is in areas that have slopes of 12 to 25 percent. These soils are susceptible to erosion (Boyne, 1979). The areas used for pasture and hay mainly support bluegrass and tall grasses. The tall grasses are tall fescue, orchardgrass-red clover, and orchardgrass-alfalfa. Many pastures are unimproved and need renovation and brush control. Some pastures and meadows show the negative effects of overgrazing, which results in weedy, short vegetative cover and an increase in the hazard of erosion. Soils in these fields commonly have low levels of phosphorus and potassium. Good management can restore these areas to much higher productivity.

Successful establishment of forage crops requires the selection of quality seed of species and varieties that are adapted to the soils in the area. Reseeding requires proper seedbed preparation, proper seeding methods, timely seeding, and proper applications of lime and fertilizer. For forage renovation, existing grass and weeds should be killed or suppressed before the desired species are reseeded. The object is to kill existing sod and leave it on or near the surface as a dead mulch. This mulch can reduce the hazard of erosion. In nearly level areas, the vegetation can be killed by plowing. In gently sloping and strongly sloping areas, tillage and seeding can be used. All tillage activities should be on the contour in these areas. Using a herbicide with the trash mulch method can reduce the amount of tillage needed to kill existing vegetation.

No-till methods can be used effectively on some soils in Ross County. These methods are not practical in areas with drainage limitations or excessive slopes. If no-till methods are used, vegetation should be suppressed or killed by grazing and herbicides.

April and August are normally the best times to make forage seedings. Seeding forage with a small grain can result in reduced stands because of plant competition for light, moisture, and nutrients.

Seeding mixtures should be based on soil types and on the desired pasture management system. Legumes increase the nutrient value of forage and provide nitrogen for grass growth. Alfalfa and red clover should be seeded on soils that have good drainage. Ladino clover and alsike clover are better adapted to the wetter soils.

Maintenance applications of lime and fertilizer can ensure good productivity and increase the life of the stand. These applications should be based on the results of soil tests. Before they go to seed, weeds should be controlled by mowing, clipping, and spraying. Such weed control is important for continued high production. Control of insects, such as alfalfa weevil and potato leaf hopper, may be necessary. All label restrictions should be observed when pesticides are used.

Harvesting hay, silage, or pasture at the proper

stage of maturity can help to achieve the maximum quality of feed for animals. The Ohio Agronomy Guide (Ohio State University Extension, 1995) can provide information on the proper management of forage species in a particular area.

Many pasture fields in Ross County are being infested with multiflora rose. Multiflora rose reduces the productivity of the field and limits the use of each field. This type of infestation should be treated before pastures are completely overtaken.

Under good management, proper grazing is essential for the production of high-quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices. Soils in areas that have slopes of more than 25 percent are generally not recommended for use as pasture or hayland.

Table 9 can be used by farmers, farm managers, conservationists, and extension agents in planning the use of the soils for pasture and hay crops. Some yield estimates are provided in animal unit months (AUM), or the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

The table lists the pasture and hayland suitability group for each soil. These groups are also listed under the heading “Interpretive Groups.” Soils assigned to the same suitability group require the same general management and have about the same potential productivity. The pasture and hayland suitability groups are described in the following paragraphs.

Soils assigned to Group A have few limitations affecting the management and growth of climatically adapted plants.

Soils in group A-1 are deep and are well drained or moderately well drained. They have a surface layer of loam, fine sandy loam, or silt loam. The available water capacity is moderate or high. Slopes range from 0 to 18 percent.

Soils in group A-2 are deep and are well drained or moderately well drained. They have a surface layer of clay loam, fine sandy loam, loam, or silt loam. The available water capacity is moderate. These soils respond favorably to additions of lime. Slopes range from 18 to 25 percent. The slope may interfere with mechanical application of lime and fertilizer and with clipping, mowing, and spraying for weed control. The slope also increases the hazard of erosion if the areas or overgrazed or cultivated for reseeding.

Soils in group A-3 are deep and are well drained or moderately well drained. They range from moderately coarse textured to fine textured in the surface layer. The available water capacity ranges from moderate to very high. Slopes range from 25 to 40 percent.

Soils in group A-5 are deep and are well drained or moderately well drained. They are subject to frequent or occasional flooding. The soils have a surface layer of silt loam or loam. The available water capacity ranges from low to very high. Slopes range from 0 to 3 percent.

Soils in group A-6 are deep, are well drained or moderately well drained, and are subject to frost action. Frost action can damage legume stands. Mixing fibrous-rooted grasses with legumes and using proper grazing management methods help to prevent the damage caused by frost action. The soils range from moderately coarse textured to moderately fine textured in the surface layer. The available water capacity ranges from low to very high. Slopes range from 0 to 18 percent.

Soils in group B have limited growth and production potential because of droughtiness.

Soils in group B-1 are deep and are well drained or moderately well drained. They range from coarse textured to moderately fine textured in the surface layer. The available water capacity is low or very low. These soils are sandy or skeletal in the subsoil. Slopes range from 0 to 25 percent.

Soils in group B-2 are deep and are well drained. They range from coarse textured to moderately fine textured in the surface layer. The available water capacity is low or very low. These soils are sandy or skeletal in the subsoil. Slopes range from 25 to 40 percent.

Soils in group B-3 are deep and are excessively drained to somewhat poorly drained. They are subject to brief periods of flooding. They have a surface layer of cobbly silt loam or loam. The available water capacity ranges from very low to moderate. These soils are sandy or skeletal in the substratum. Slopes range from 0 to 6 percent.

Soils in group C are wet because of a seasonal high water table and are saturated during the growing season.

Soils in group C-1 are deep and are somewhat poorly drained or poorly drained. They have a surface layer of silt loam. The available water capacity is moderate or high. These soils normally respond well to subsurface drainage. Slopes range from 0 to 6 percent.

Soils in group C-2 are deep and are somewhat poorly drained or poorly drained. They have a surface layer of silt loam. The available water capacity is moderate or high. The soils have a seasonal high

water table. Subsurface drains are used to lower the seasonal high water table. The effectiveness of subsurface drainage is typically restricted by the permeability of the subsoil or the landscape position of the soil. Slopes range from 0 to 4 percent.

Soils in group C-3 are deep and are poorly drained or somewhat poorly drained. They are subject to frequent or occasional flooding. The soils have a surface layer of silt loam. The available water capacity ranges from moderate to very high. The effectiveness of subsurface drainage is limited by the landscape position of the soil. Slopes range from 0 to 2 percent.

Soils in group D are organic soils.

Soils in group D-1 are deep and are very poorly drained. They formed entirely or partially in organic material. The available water capacity is high or very high. Slopes range from 0 to 2 percent.

Soils in group E are shallow soils in which root growth is restricted to a depth of less than 20 inches.

Soils in group E-1 are well drained or poorly drained. They range from moderately coarse textured to fine textured in the surface layer. The available water capacity is low or very low. Slopes range from 0 to 25 percent.

Soils in group E-2 are well drained. They range from moderately coarse textured to fine textured in the surface layer. The available water capacity is low or very low. Slopes range from 25 to 40 percent.

Soils in group F have only a moderately deep root zone. The growth of climatically adapted plants is restricted in these soils to a depth of 20 to 40 inches.

Soils in group F-1 are moderately deep and are well drained or moderately well drained. They have a surface layer of silt loam or channery silt loam. The available water capacity is low or very low. Slopes range from 3 to 25 percent.

Soils in group F-2 are moderately deep and are well drained or moderately well drained. They have a surface layer of silt loam. The available water capacity is low. Slopes range from 25 to 40 percent.

Soils in group F-3 are moderately well drained. They are moderately deep to a fragipan. The surface layer is silt loam. The available water capacity is low or moderate in the root zone. Slopes range from 0 to 15 percent.

Soils in group F-5 are deep and are moderately well drained. They have a surface layer of silty clay loam. A high content of clay in the subsoil restricts the rooting depth of plants. The available water capacity is moderate. Slopes range from 3 to 25 percent.

Soils in group F-6 are moderately well drained or well drained. They range from medium textured to fine textured in the surface layer. The available water capacity is low or moderate in the root zone. A high content of clay in the subsoil restricts the rooting depth of deep-rooted forage plants. The soils also have a high bulk density or may have other properties that restrict the rooting depth of plants. Slopes range from 25 to 40 percent.

Soils in group F-7 are somewhat poorly drained to very poorly drained. They range from moderately coarse textured to fine textured in the surface layer. The available water capacity is low or moderate in the root zone. A high content of clay in the subsoil restricts the rooting depth of deep-rooted forage plants. The soils also have a high bulk density or may have other properties that restrict the rooting depth of plants. Slopes range from 0 to 6 percent.

Soils in group H are not adapted to pasture and hayland.

Soils in group H-1 are toxic or have slopes of more than 40 percent.

The local office of the Natural Resources Conservation Service or the Ohio State University Extension can provide additional information about forage yields in the county.

Landscape Plantings, Windbreaks, and Environmental Plantings

Information about the relationship between soils and the selection of landscaping materials can help the user save money by preventing plant loss. The four soil characteristics that most affect the selection of plants for landscaping purposes are texture, drainage, available water capacity, and reaction in the subsoil. Information on these properties is provided under the heading “Detailed Soil Map Units,” in the series descriptions under the heading “Soil Series and Their Morphology,” and in various tables. This information can be used to help determine which plants are most suitable for use in a specific area.

Texture refers to the percentage of sand, silt, and clay in the soil. Generally, soils that have less than 40 percent clay in the subsoil and that have a low content of rock fragments provide the best environment for root development.

Drainage depends primarily on the position of the soil on the landscape. Much of the rainwater and snowmelt runs off the higher or more sloping, better drained areas and onto the lower and/or flatter areas. A well drained soil is typically characterized by yellowish or brown colors and little or no gray. The wetter the soil, the higher the percentage of gray colors; poorly drained or very poorly drained soils are dominantly gray. Subsurface drainage can lower the water table, but installation may be difficult and

maintenance can be costly. In areas where the water table is close to the surface, plants that grow well in wet conditions should be selected.

Available water capacity refers to the capacity of the soil to hold water and make it available for use by most plants. Available water capacity is measured to a depth of 60 inches or to the depth of a root-limiting layer, such as bedrock, dense glacial till, sand and gravel, or a fragipan. Generally, the shallower the soil is to a root-limiting layer, the lower the available water capacity. In areas where the soils have a low or moderately low available water capacity, plants that tolerate droughty conditions should be selected.

Reaction refers to the acidity or alkalinity (pH) of the soil. The pH of the surface layer can be modified relatively easily by the addition of lime or sulfur, but it is almost impossible to alter the pH of the subsoil. Although many plants grow well within a wide range in pH, some plants, such as azaleas and rhododendrons, require an acid subsoil.

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 10 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 10 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Ohio State University Extension or from a commercial nursery.

Forestland Productivity and Management

Bill Tyler, staff forester, Ohio Department of Natural Resources, Division of Forestry, helped prepare this section.

Approximately 38 percent of Ross County is wooded (Dennis and Birch, 1981; Ramey and others, 1993; USDA, 1971; USDA, 1984; USDA/SCS, 1987). About 146,300 acres of the forestland occurs as privately owned stands, and 22,500 acres occurs as public lands. The public forests are Scioto Trail State Forest in the south-central part of the county and Tar Hollow State Forest in the eastern part.

Most of the wooded acreage occurs as areas of steep or very steep soils that formed in material weathered from the underlying siltstone, sandstone, and shale bedrock. The most extensive of these soils are in areas of the Cruze-Shelocta-Brownsville general soil map unit. A number of smaller woodlots are on many farms in the glaciated part of the county. These woodlots range in size from 1 to 10 acres. The acreage of forestland in the county has increased in recent years, particularly in the steep and very steep areas, where the soils are not well suited to cultivated crops or hay and are reverting to forestland.

Most of the forests in Ross County support mixed hardwoods, predominantly oaks; however, five major forest types occur in the county. These are (1) oak-hickory, (2) mixed hardwoods, (3) elm-ash-maple, (4) pine-hardwoods, and (5) eastern redcedar. These are the five major forest type groups throughout the Central Region of the United States (Barnet, 1962; Braun, 1950; Chapman and Demeritt, 1936; Eyre, 1980).

The oak-hickory forest type, sometimes called “upland oak,” makes up the largest area of forestland in the county. This group is dominantly white oak, black oak, scarlet oak, chestnut oak, northern red oak, and hickories. Other species that are common include soft maple, elm, ash, and yellow-poplar. Scarlet oak and chestnut oak are typically on the poorer growing sites, such as sharp ridges and south- and west-facing hillsides. Other oak species occur on all other growing sites and grade into areas of the mixed hardwood forest type on the moist, well drained soils.

The mixed hardwood forest type, often called “mixed mesophytic” (Braun, 1950), consists mainly of sugar maple, beech, elm, ash, and yellow-poplar and associated species, including basswood, blackgum, and black walnut. Oak and hickory are common, and hemlock occurs in a few places. The mixed hardwood forest type requires moist but well drained soils. Examples are soils on hillsides, in coves, and on north- or east-facing benches.

The elm-ash-maple forest type occurs along the Scioto River and other major streams in the county. This forest type is often called “bottom-land hardwoods.” Tree species include American elm, red maple, silver maple, cottonwood, sycamore, and box elder. Common associated species include pin oak, ash, willow, walnut, and mixed oak species.

In Ross County, the pine-hardwoods forest type is of minor importance. This group is dominantly Virginia pine and mixed oaks, but shortleaf pine and/or pitch pine can occur along with or in place of the Virginia pine. This forest type typically occurs on the drier sites, such as ridges, the upper slopes, and in south- and west-facing areas.

The eastern redcedar forest type is of small economic consequence in Ross County. Redcedar occurs either in poor stands or mixed with hardwoods. Typically, this forest type occurs as scattered stands within areas of the other forest types or, in the western part of the county, in areas of former farmland that are reverting to forestland.

Pine plantations are rapidly becoming economically important in the county. The main species is eastern white pine, but other pine species, such as red pine and shortleaf pine, also are planted. Pine can be planted and grown on many types of soils and in many areas of the county.

Beginning in the 1800s, timber stands in the survey area were abused. Early logging operations removed only the best and most useable trees of the preferred species—for example, yellow-poplar for building material and oak for railroad ties. Poorly formed trees, low-quality trees, hollow trees, and species that had no merchantable value were left in the woods. These "high grading" cutting practices, along with destructive forest fires, have severely reduced the quality of the timber stands in the county. Although some "high grading" is still practiced, much of the county's forestland is under good timber management. Also, forest fires are generally controlled before too much damage occurs.

Good management of timber stands and proper timber harvesting methods involve the use of timber stand improvement practices, timber stand thinnings, improvement cutting, and reproductive harvesting using even-aged or uneven-aged cutting techniques. The use of these practices depends on the age of the stand, the type of timber, the quality and condition of the individual trees, the type of soil, and the aspect, or direction of exposure, of the site (Chapman and Demeritt, 1936; Dennis and Birch, 1981; USDA/NRCS, National Forestry Manual).

The productivity of soils used as forestland can vary. The factors that influence the growth of trees are almost the same as those that influence the production of annual crops and pasture. Tree roots extend deeper into the soil than the roots of crops and pasture plants. The aspect of the site and the position of the soil on the landscape also are important. Other properties to be considered are the slope, the degree of past erosion, soil reaction, the thickness of the surface layer, and the fertility level. The best sites for forestland are generally on the lower parts of the slopes and in coves; the poorer sites are generally on the upper parts of the slopes and on ridges. Furthermore, the best sites are mainly on north- and east-facing slopes (Barnet, 1962; Carmean, 1967; Carmean and Ashley, 1972; Chapman and Demeritt, 1936; Dennis and Birch, 1981).

Site-quality differences associated with aspect are slight in areas where slopes are gentle. In steep areas, however, site-index values are much higher on northeast-facing slopes than on southwest-facing slopes (Barnet, 1962; Carmean, 1967; Carmean and Ashley, 1972; Chapman and Demeritt, 1936).

On southwest-facing slopes, site quality decreases as the slope increases. The differences in site quality associated with gradient are less pronounced on southeast and northwest aspects. On northeast-facing slopes, the values even increase slightly as the slope increases.

The position of the soil on the landscape is important in determining the amount of moisture available for tree growth. The amount of soil moisture generally increases as elevation decreases, partly because of downslope seepage. Also, soils on the lower parts of the slope are generally deeper than those on the upper parts, lose less moisture through evaporation, and have a somewhat lower temperature. Concave areas are better sites for woodland than convex areas, where surface water runs off more rapidly. Ridges and the upper slopes generally are convex, whereas the lower slopes and the footslopes are commonly concave.

The slope is an important factor affecting woodland management. The use of equipment is severely restricted in steep or very steep areas. As the slope increases, the rate of water infiltration decreases and the runoff rate and the hazard of erosion increase.

Erosion-control measures are needed during and after the harvest. Erosion reduces the volume of soil available for water storage. Severe erosion removes the surface layer and exposes the subsoil. Because the subsoil is commonly less porous than the surface layer, the runoff rate increases and the rate of water infiltration and the available water capacity decrease. Both tree growth and natural reseeding are adversely affected by severe erosion. The hazard of erosion is generally more severe along poorly located skid trails and haul roads than in other parts of the forest. This hazard can be reduced by constructing effective water bars on the logging trails and by reseeding the trails.

The thickness of the surface layer affects tree height more significantly than any other single soil or topographic feature. The thickness of the surface soil

and the texture of the subsoil are affected by landscape position, aspect, and the shape and steepness of slopes (Barnet, 1962; Carmean, 1967; Carmean and Ashley, 1972).

Soil reaction and fertility influence tree growth and the suitability of the soils for different kinds of trees. In general, trees grow more slowly on the less fertile soils, but fertility has a major effect on tree production in areas where the soils are deficient in critical nutrients (Barnet, 1962; Carmean, 1967; Carmean and Ashley, 1972).

Christmas trees are grown in some areas of the county. They can grow well on many of the soils but are adversely affected by various factors. The combination of soil conditions, topographic factors, climatic factors, and biotic agencies prevailing in an area constitute the site factors of that area. These site factors, along with ecological requirements of the species, should be carefully considered in order to ensure successful establishment, survival, and growth (Carmean, 1967; Carmean and Ashley, 1972; USDA/NRCS, National Forestry Manual).

Additional information regarding the management of forestland is available from the Ohio Department of Natural Resources, Division of Forestry; the Ohio State University Extension; and the Natural Resources Conservation Service.

Tables 11 through 14 can help forestland owners or managers plan the use of soils for wood crops. The tables show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forestland management.

In table 11, 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 provided 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.

In tables 12, 13, and 14, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming 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.

Ratings in the column *erosion hazard* 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 *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.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for site preparation* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *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.

Recreation

Ross County has about 30,000 acres of State and Federal lands used for recreational purposes. There are two State forests—Scioto Trails and Tar Hollow—and four State parks—Scioto Trails, Tar Hollow, Great Seal, and Paint Creek. All of these facilities are open to the public for camping, boating, fishing, hunting, hiking, horseback riding, berry picking, mushroom gathering, and many other recreational activities.

Ross County has two large wildlife areas. These are Pleasant Valley and Ross Lake. There are also many small areas throughout the county that are open to the public for fishing and hunting.

Hopewell Culture National Historical Park is in Ross County. This park represents the burial aspects of the Hopewell Era.

The soils of the survey area are rated in tables 15a and 15b 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 tables 15a and 15b 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. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Ross County supports a wide variety of wildlife. Some of the more common birds that inhabit the county are bobwhite quail (fig. 15), pheasant, wild turkey, mourning dove, ruffed grouse, common crow, pileated woodpecker, red-tailed hawk, great horned owl, barn owl (fig. 16), meadowlark, bobolink, and many other species of songbirds. Mammals include cottontail rabbit, gray squirrel, fox squirrel, gray fox, red fox, whitetail deer, raccoon, woodchuck, mink, and beaver.

The county also has a wide variety of wildlife habitats, including openland, woodland, and riparian areas along rivers and streams.

Upland wildlife habitat is made up of both openland and woodland. The major soils in the area of upland wildlife habitat include Gilpin, Latham, Shelocta, Tilsit, and Cruze soils in the hills and Miamian and Crosby soils on the till plains. Including grasses and legumes in the cropping sequence, applying a system of conservation tillage, constructing ponds, and planting trees and shrubs can improve the habitat for openland wildlife. Applying measures that improve timber stands, excluding livestock from wooded areas, and planting trees and shrubs can improve the habitat for woodland wildlife.

The major riparian areas in the county are along the Scioto River, Paint Creek, Salt Creek, and Deer Creek. The dominant soils in these areas include Ross, Gessie, Haymond, and Tioga soils. Stabilizing streambanks, building nest boxes for wood ducks, and planting trees and shrubs can improve the riparian habitat.

Eroded soils can be developed into habitat for upland wildlife by planting grasses and legumes and shrubs. These plantings provide food and cover for wildlife and help to control erosion.

Creating special habitat through the use of artificial nesting structures, feeding stations, food patches, and wildflowers can attract many different kinds of songbirds.

Additional information on the development of wildlife habitat is available from the Ohio Department of Natural Resources, Division of Wildlife, and the Natural Resources Conservation Service.

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 16, 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

Figure 15.—The bobwhite quail is common in rural areas of Ross County.

stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, rye, 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, bromegrass, clover, timothy, orchardgrass, crown vetch, 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

Figure 16.—Barn owls are found in many parts of the world. They are equally at home in an Ohio barn, an Egyptian pyramid, or an English castle.

soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, indiangrass, fescue, lambsquarters, wheatgrass, and nightshade.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are American plum, redosier dogwood, serviceberry, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, hemlock, 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, bulrushes, arrowhead, cattails, waterplantain, wild millet, wildrice, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

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 and others, 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 and others, 1998).

Aa	Adrian muck
Cd	Carlisle muck
Ko	Kokomo silt loam, overwash
Kp	Kokomo silty clay loam
Pc	Patton silty clay loam, sandy substratum
Pg	Peoga silt loam
St	Sloan silty clay loam, occasionally flooded
Wk	Westland clay 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.

CgA	Celina silt loam, 0 to 2 percent slopes
CgB	Celina silt loam, 2 to 6 percent slopes
CgB2	Celina silt loam, 2 to 6 percent slopes, eroded
CvA	Crosby silt loam, 0 to 2 percent slopes
CvB	Crosby silt loam, 2 to 6 percent slopes
EuA	Euclid silt loam, rarely flooded
Ge	Gessie silt loam, occasionally flooded
Gf	Gessie silt loam, frequently flooded
Hd	Haymond silt loam, occasionally flooded
HeA	Henshaw silt loam, 0 to 4 percent slopes
MhB	Miamian silt loam, 2 to 6 percent slopes
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded
MhC2	Miamian silt loam, 6 to 12 percent slopes, eroded
MnB	Miamian-Lewisburg complex, 2 to 6 percent slopes
Or	Orrville silt loam, frequently flooded
Rn	Ross silt loam, occasionally flooded
Sv	Stonelick loam, occasionally flooded
Sw	Stonelick fine sandy loam, frequently flooded
TbA	Taggart silt loam, 0 to 2 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, waste management, 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; evaluate sites for agricultural waste management; 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 17a and 17b 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, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 18 shows 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.

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 19 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this

wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and

performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

Construction Materials

Table 20 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

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 soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high 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 engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 20, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

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.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of

soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

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 21 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits 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.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. 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.

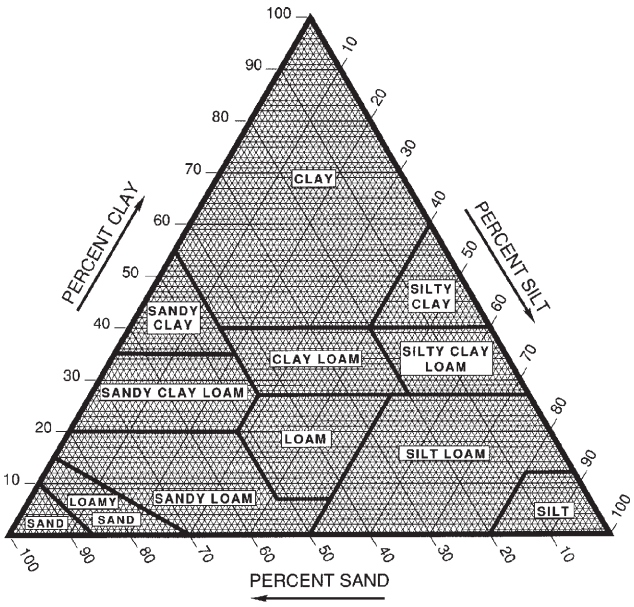


Figure 17.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 22 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 (fig. 17). “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, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

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 23 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.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 23, 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 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.

Permeability (K_{sat}) 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 inches per hour, 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.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling

of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; *high*, 6 to 9 percent; and *very high*, greater than 9 percent.

Erosion factors are shown in table 23 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 several 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 rock fragments on the surface or because of surface wetness.

Chemical Properties

Table 24 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.

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.

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.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) 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.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less

than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

Table 25 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. Table 25 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.

Also indicated is the *kind* of water table—that is, apparent or perched. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 25 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather

conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 26 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, fragipans, and dense layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years.

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.

Physical and Chemical Analyses of Selected Soils

Several of the soils in Ross County were sampled and subsequently analyzed by the Soil Characterization Laboratory, School of Natural Resources, The Ohio State University, Columbus, Ohio. The physical and chemical data obtained from these analyses include particle-size distribution, reaction, organic matter content, extractable cations, and calcium carbonate equivalent. The collected data were used to classify and correlate the soils sampled. They were also used for evaluating the behavior of these soils under various land use situations. Eleven pedons were sampled for total soil characterization, either because they represented new series established in Ross County or because they were representative of their respective soil series. These pedons are described in the section “Soil Series and Their Morphology.” The names of the sampled soils and their laboratory identification numbers are: Alford (Pike) (RO-98), Cana (RO-95), Eldean (RO-93), Haubstadt (RO-99), Kinn (RO-103), Parke (Libre) (RO-96), Rainsboro (RO-97), Ross (RO-94), Spargus (RO-101), Tarhollow (RO-100), and Thrifton (RO-102). Laboratory data from the initial soil survey of Ross County (fieldwork from 1952 to 1959; published in 1967) and laboratory data from adjoining counties also

are available. The data from the initial survey and from this update survey are on file at the School of Natural Resources, The Ohio State University; the Ohio Department of Natural Resources, Division of Soil and Water Conservation; and the Natural Resources Conservation Service, State Office, Columbus, Ohio.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 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 27 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 Aqualf (*Aqu*, meaning water, 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 Epiaqualfs (*Epi*, meaning upon or over, plus *aqualfs*, the suborder of the Alfisols that has an aquic 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. An example is Aeric Epiaqualfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, mixed, active, mesic Aeric Epiaqualfs.

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.

Adrian Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately rapid in the organic material and rapid in the substratum
Parent material: Organic material over gravelly, loamy, and sandy outwash
Landform: Outwash plains and till plains
Position on the landform: Depressions
Slope range: 0 to 2 percent
Adjacent soils: Carlisle and Westland

Taxonomic classification: Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists

Typical Pedon

Adrian muck, about 2.5 miles south of New Carlisle, in Bethel Township, in Clark County, Ohio; about 660 feet north and 2,245 feet west of the center of sec. 26, T. 3 N., R. 9 W.

Oa1—0 to 10 inches; muck (sapric material), black (N 2.5/0) broken face and rubbed; about 5 percent fibers, less than 5 percent rubbed; moderate medium granular structure; primarily herbaceous fibers; very friable; neutral; abrupt wavy boundary.

Oa2—10 to 22 inches; muck (sapric material), very dark gray (10YR 3/1) broken face and rubbed; about 10 percent fibers, 5 percent rubbed; weak coarse subangular blocky structure; primarily herbaceous fibers; very friable; slightly acid; gradual wavy boundary.

C1—22 to 28 inches; brown (10YR 5/3) very gravelly sandy loam; weak medium subangular blocky structure; friable; few bodies of gray (10YR 5/1) gravelly silt loam; about 55 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

C2—28 to 80 inches; brown (10YR 5/3) very gravelly loamy sand; single grain; loose; about 55 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the organic material: 16 to 50 inches
Content of rock fragments: 30 to 60 percent in the C horizon

Surface tier:
Color—hue of 10YR or N, value of 2 or 2.5, and chroma of 0 to 3
Texture—muck (sapric material)

Subsurface tier:
Color—hue of 10YR, 7.5YR, or N, value of 2 to 3, and chroma of 0 to 3
Texture—muck (sapric material)

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 1 to 3
Texture—the gravelly or very gravelly analogs of sandy loam and loamy sand

Alexandria Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow
Parent material: Wisconsinan till
Landform: Wisconsinan till plains
Position on the landform: Backslopes and shoulders
Slope range: 6 to 35 percent
Adjacent soils: Cruze, Fox, Rodman, Markland, and Miamian

Taxonomic classification: Fine, illitic, mesic Oxyaquic Hapludalfs

Typical Pedon for Ross County

Alexandria silt loam, 6 to 12 percent slopes, eroded, about 0.75 mile west-southwest of Adelphi, in Colerain Township; about 200 feet west and 2,000 feet north of the southeast corner of sec. 2, T. 10 N., R. 20 W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium granular structure; friable; many fine roots; 1 percent rock fragments; strongly acid; clear smooth boundary.

Bt1—7 to 11 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; common fine roots; common distinct yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) organic coatings on faces of peds; 5 percent rock fragments; strongly acid; clear wavy boundary.

Bt2—11 to 20 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 10 percent rock fragments; moderately acid; gradual smooth boundary.

Bt3—20 to 30 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; 10 percent rock fragments; slightly acid; gradual smooth boundary.

Bt4—30 to 38 inches; yellowish brown (10YR 5/4) clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 10 percent rock fragments; slightly acid; gradual wavy boundary.

Cd1—38 to 58 inches; yellowish brown (10YR 5/4) clay loam; massive; firm; common medium distinct yellowish brown (10YR 5/6) masses of iron

accumulation in the matrix; 10 percent rock fragments; slightly effervescent; slightly alkaline; gradual wavy boundary.

Cd2—58 to 80 inches; brown (10YR 5/3) loam; massive; firm; common medium distinct dark gray (10YR 4/1) masses of iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 10 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 26 to 50 inches
Depth to carbonates: 30 to 60 inches
Content of rock fragments: 0 to 10 percent in the upper 20 inches of the solum; 2 to 15 percent below a depth of 20 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—clay loam, silty clay loam, silty clay, or clay

Cd horizon:
Color—hue of 2.5Y, 10YR, or 7.5YR, value of 4 or 5, and chroma of 2 to 4
Texture—clay loam, silty clay loam, or loam

Avonburg Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow in the upper part and very slow in the lower part
Parent material: Loess and the underlying Illinoian till
Landform: Illinoian till plains
Position on the landform: Flats and slight rises
Slope range: 0 to 6 percent
Adjacent soils: Rossmoyne

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Fragic Glossaqualfs
Taxadjunct features: The Avonburg soils in this survey area do not meet the requirements for a fragipan. The prisms are too small. Also, the 2Bt horizons have less sand than is defined as the range for the series. These differences do not significantly affect the use and management of the soils. These soils are classified as fine-silty, mixed, active, mesic Aeric Epiaqualfs.

Typical Pedon for Ross County

Avonburg silt loam, 0 to 2 percent slopes, about 2.4 miles north-northeast of Bourneville, in Twin Township; about 395 feet southeast of the intersection of Township Road 108 and Township Road 105, along Township Road 108, then 430 feet east:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine roots; common fine and medium black (10YR 2/1) iron and manganese concretions throughout; strongly acid; abrupt smooth boundary.

BE—9 to 13 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; common fine roots; common faint grayish brown (10YR 5/2) clay depletions on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine and medium black (10YR 2/1) iron and manganese concretions throughout; very strongly acid; clear smooth boundary.

Bt—13 to 20 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few faint gray (10YR 5/1) and brown (7.5YR 4/4) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; many distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; common fine strong brown (7.5YR 5/8) and few fine faint yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; very strongly acid; clear smooth boundary.

B/E—20 to 25 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few faint gray (10YR 5/1) and dark brown (7.5YR 4/4) clay films on faces of peds; many prominent light brownish gray (10YR 6/2) siltans (E material) on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; very strongly acid; clear smooth boundary.

2Bt—25 to 35 inches; yellowish brown (10YR 5/6) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few faint gray (10YR 5/1) and dark brown (7.5YR 4/4) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) masses of iron depletions in the matrix; many distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; very strongly acid; clear smooth boundary.

2Btx—35 to 58 inches; yellowish brown (10YR 5/4)

silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; very firm; brittle; few fine roots along faces of prisms; few faint gray (10YR 5/1) and brown (7.5YR 4/4) clay films on faces of peds; common fine distinct gray (10YR 5/1) iron depletions in the matrix; many distinct gray (10YR 5/1) clay depletions on vertical faces of prisms; faint distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few rock fragments; very strongly acid; clear wavy boundary.

2B´t1—58 to 72 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse subangular blocky structure; firm; few faint gray (10YR 5/1) and brown (10YR 4/3) clay films on faces of peds; common medium distinct gray (10YR 5/1) iron depletions in the matrix; many distinct gray (10YR 5/1) clay depletions on faces of peds; many medium faint yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.

2B´t2—72 to 80 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse subangular blocky structure; firm; few faint gray (10YR 5/1) clay films on faces of peds; common medium distinct gray (10YR 5/1) iron depletions in the matrix; many distinct gray (10YR 5/1) clay depletions on faces of peds; common medium faint yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 48 to 96 inches
Depth to the fragipan: 21 to 36 inches
Thickness of the loess mantle: 20 to 40 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt or Btg horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 to 6
Texture—silt loam or silty clay loam.

2Bt, 2Btg, or 2Btx horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 1 to 6
Texture—silt loam, silty clay loam, loam, or clay loam

2B´t horizon:
Color—hue of 10YR, 7.5YR, or 2.5Y, value of 4 to 6, and chroma of 3 to 6
Texture—clay loam, loam, or silty clay loam

Berks Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Residuum derived from shale, siltstone, and fine grained sandstone
Landform: Hills
Position on the landform: Summits, footslopes, and backslopes
Slope range: 6 to 35 percent
Adjacent soils: Cruze, Gilpin, Shelocta, Tarhollow, and Weikert

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon for Ross County

Berks channery silt loam, in an area of Berks-Tarhollow complex, 6 to 15 percent slopes, 7 miles south of Adelphi, in Harrison Township; 1,740 feet east and 930 feet south of the northwest corner of sec. 12, T. 9 N., R. 20 W.

A—0 to 2 inches; dark grayish brown (10YR 4/2) channery silt loam, pale brown (10YR 6/3) dry; weak medium and fine granular structure; friable; many fine and common medium roots; 15 percent rock fragments; very strongly acid; abrupt smooth boundary.

E—2 to 5 inches; brown (10YR 5/3) channery silt loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; 30 percent rock fragments; strongly acid; clear smooth boundary.

Bw1—5 to 18 inches; yellowish brown (10YR 5/4) very channery silt loam; moderate fine subangular blocky structure; friable; few fine and medium roots; 50 percent rock fragments; very strongly acid; clear smooth boundary.

Bw2—18 to 23 inches; yellowish brown (10YR 5/4) extremely channery silt loam; weak coarse subangular blocky structure; friable; few fine roots; 65 percent rock fragments; strongly acid; clear smooth boundary.

C—23 to 33 inches; yellowish brown (10YR 5/6) extremely channery silt loam; massive; friable; 80

percent rock fragments; strongly acid; clear smooth boundary.

R—33 to 35 inches; yellowish brown (10YR 5/4), fractured siltstone.

Range in Characteristics

Thickness of the solum: 15 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: 10 to 50 percent in the A horizon, 15 to 75 percent in the Bw horizon, and 35 to 90 percent in the C horizon

A horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3
Texture—silt loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—silt loam or silty clay loam in the fine-earth fraction

C horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—silt loam or loam in the fine-earth fraction

Brownsville Series

Depth class: Deep and very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Residuum and colluvium derived from siltstone and fine grained sandstone
Landform: Hills
Position on the landform: Backslopes
Slope range: 35 to 70 percent
Adjacent soils: Cruze and Shelocta

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon for Ross County

Brownsville channery silt loam, in an area of Shelocta-Brownsville association, very steep, 5 miles south of Adelphi, in Colerain Township; 390 feet south and 330 feet east of the northwest corner of sec. 36, T. 10 N., R. 20 W.

A—0 to 2 inches; dark grayish brown (10YR 4/2) channery silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many fine and common medium roots; 25 percent rock fragments; moderately acid; clear smooth boundary.

E—2 to 5 inches; pale brown (10YR 6/3) channery silt loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots; 30 percent rock fragments; strongly acid; clear smooth boundary.

Bw1—5 to 15 inches; pale brown (10YR 6/3) channery silt loam; weak medium and fine subangular blocky structure; friable; few fine and medium roots; 30 percent rock fragments; strongly acid; clear smooth boundary.

Bw2—15 to 32 inches; light yellowish brown (10YR 6/4) extremely channery silt loam; weak medium subangular blocky structure; friable; few fine roots; 75 percent rock fragments; strongly acid; abrupt wavy boundary.

C—32 to 42 inches; light yellowish brown (10YR 6/4) extremely flaggy silt loam; massive; friable; 90 percent rock fragments; strongly acid; clear smooth boundary.

R—42 to 45 inches; yellowish brown (10YR 5/4), fractured fine grained sandstone.

Range in Characteristics

Thickness of the solum: 24 to 55 inches
Depth to bedrock: 40 to 72 inches
Content of rock fragments: 15 to 35 percent in the A and E horizons, 15 to 85 percent in the Bw horizon, and 30 to 90 percent in the C horizon

A horizon:
Color—hue of 10YR, value of 2 to 5, and chroma of 1 to 4
Texture—silt loam in the fine-earth fraction

E horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—silt loam in the fine-earth fraction

Bw horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 4 to 6
Texture—silt loam or loam in the fine-earth fraction

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 3 or 4
Texture—silt loam or loam in the fine-earth fraction

Cana Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part and slow in the lower part

Parent material: A thin layer of loess and Illinoian till over clayey residuum derived from acid shale
Landform: Glaciated hills
Position on the landform: Summits, shoulders, footslopes, and backslopes
Slope range: 2 to 35 percent
Adjacent soils: Cruze, Hickory, Negley, Rossmoyne, Shelocta, and Weikert

Taxonomic classification: Fine, mixed, active, mesic Aquultic Hapludalfs

Typical Pedon for the Series

Cana silt loam, 6 to 12 percent slopes, eroded, about 3.2 miles east-southeast of South Salem, in Buckskin Township, in Ross County, Ohio; about 3,060 feet west of the intersection of County Road 54 and Township Road 46, along County Road 54, then 1,320 feet north:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; friable; common fine roots; 10 percent mixing of subsoil material; 2 percent rock fragments; moderately acid; abrupt smooth boundary.

Bt1—8 to 13 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; common fine roots; few distinct brown (7.5YR 4/4) clay films on faces of peds; few prominent brown (10YR 4/3) organic coatings along root channels; 2 percent rock fragments; moderately acid; clear smooth boundary.

2Bt2—13 to 17 inches; strong brown (7.5YR 5/6) clay; moderate fine subangular blocky structure; firm; few fine roots; common faint strong brown (7.5YR 5/6) clay films on faces of peds; few medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common fine distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid; clear smooth boundary.

2Bt3—17 to 28 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; very firm; few fine roots; common distinct pale brown (10YR 6/3) and strong brown (7.5YR 5/6) clay films on faces of peds; many medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common fine faint strong brown (7.5YR 5/6) masses of iron and manganese accumulation in the matrix; 10 percent rock fragments; very strongly acid; abrupt smooth boundary.

2Bt4—28 to 32 inches; strong brown (7.5YR 5/6) clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct strong brown (7.5YR 5/6) and few distinct brown (7.5YR 4/4) clay films on faces of peds; common fine prominent light brownish gray (10YR 6/2) iron oxide depletions in the matrix; common prominent black (10YR 2/1) masses of iron and manganese accumulations in the matrix; 5 percent rock fragments; very strongly acid; abrupt smooth boundary.

3Bt5—32 to 42 inches; yellowish brown (10YR 5/6) silty clay; moderate coarse subangular blocky structure; very firm; few fine roots along vertical faces of peds; common distinct light brownish gray (10YR 6/2) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common prominent black (10YR 2/1) masses of iron and manganese accumulation in the matrix; common soft shale fragments; very strongly acid; clear smooth boundary.

3C—42 to 51 inches; very dark gray (10YR 3/1) and strong brown (7.5YR 5/6) silty clay; massive; very firm; few prominent yellowish red (5YR 5/6) iron accumulations throughout; common soft shale fragments; extremely acid; clear wavy boundary.

3Cr—51 to 55 inches; very dark gray (10YR 3/1) shale.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: 40 to 60 inches
Thickness of the loess mantle: 2 to 24 inches
Thickness of the till material: 8 to 24 inches
Depth to material weathered from shale: 8 to 48 inches
Content of rock fragments: 0 to 2 percent in the A and Bt horizons, 2 to 10 percent in the 2Bt horizon, and 0 to 25 percent in the 3Bt and 3C horizons

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

2Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silty clay loam, silty clay, clay, or clay loam

3Bt and 3C horizons:
Color—hue of 5YR, 7.5YR, 10YR, or 2.5Y, value of 3 to 6, and chroma of 1 to 6
Texture—silty clay, clay, or silty clay loam in the fine-earth fraction

Carlisle Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately rapid
Parent material: Woody organic material
Landform: Ground moraines
Position on the landform: Depressions
Slope range: 0 to 2 percent
Adjacent soils: Adrian and Westland

Taxonomic classification: Euic, mesic Typic Haplosaprists

Typical Pedon for Ross County

Carlisle muck, about 2 miles southeast of Kingston, in Green Township; about 925 feet east and 330 feet north of the southwest corner of sec. 11, T. 9 N., R. 21 W.

Oa1—0 to 10 inches; sapric material, black (10YR 2/1) broken face and rubbed; about 1 percent fiber, 0 percent rubbed; moderate medium subangular blocky structure; very friable; common fine and few medium roots; slightly alkaline; clear wavy boundary.

Oa2—10 to 19 inches; sapric material, black (10YR 2/1) broken face and rubbed; about 10 percent fiber, 2 percent rubbed; weak coarse subangular blocky structure; very friable; few fine and medium roots; 5 percent shell fragments; few woody fragments; slightly alkaline; gradual wavy boundary.

Oa3—19 to 33 inches; sapric material, dark reddish brown (5YR 3/2) broken face and dark reddish brown (5YR 2.5/2) rubbed; about 30 percent fiber, 5 percent rubbed; weak coarse subangular blocky structure; very friable; 2 percent shell fragments; 5 percent woody fragments; slightly alkaline; gradual wavy boundary.

Oa4—33 to 56 inches; sapric material, dark reddish brown (5YR 3/2) broken face and dark reddish brown (5YR 2.5/2) rubbed; about 40 percent fiber, 15 percent rubbed; weak very coarse subangular blocky structure; very friable; 10 percent woody fragments; slightly alkaline; gradual wavy boundary.

C1—56 to 65 inches; grayish brown (10YR 5/2) and dark brown (7.5YR 3/2) silt loam; massive; friable; 5 percent rock fragments; very slightly effervescent; moderately alkaline; clear smooth boundary.

C2—65 to 80 inches; yellowish brown (10YR 5/4), stratified silt loam, loam, and gravelly sandy loam; massive; friable; 15 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the woody organic material: More than 51 inches
Depth to carbonates: More than 51 inches
Content of rock fragments: 0 to 20 percent in the C horizon

Surface tier:
Color—hue of 10YR or 5YR, value of 2, and chroma of 1
Texture—dominantly sapric material

Subsurface and bottom tiers:
Color—hue of 5YR, 7.5YR, 10YR, or N, value of 2 to 3, and chroma of 0 to 3
Texture—dominantly sapric material

C horizon:
Color—hue of 10YR, value of 5, and chroma of 2 to 4
Texture—silt loam, loam, or sandy loam in the fine-earth fraction

Casco Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid in the subsoil and very rapid in the substratum
Parent material: A thin layer of loamy deposits over calcareous sand and gravel
Landform: Outwash plains
Position on the landform: Risers
Slope range: 12 to 35 percent
Adjacent soils: Eldean, Fox, and Rodman

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Inceptic Hapludalfs

Typical Pedon

Casco gravelly loam, in an area of Casco-Rodman gravelly loams, 12 to 18 percent slopes, about 2 miles south of Circleville, in Circleville Township, in Pickaway County, Ohio; about 3,100 feet west and 1,750 feet north of the southeast corner of sec. 31, T. 11 N., R. 21 W.

Ap—0 to 7 inches; brown (10YR 4/3) gravelly loam; moderate medium granular structure; friable; many fine roots; 15 percent gravel; neutral; abrupt smooth boundary.

Bt1—7 to 11 inches; dark yellowish brown (10YR 4/4) gravelly clay loam; weak medium subangular blocky structure; friable; common fine roots; many faint brown (10YR 4/3) clay films on faces of peds; 30 percent gravel; neutral; clear wavy boundary.

Bt2—11 to 14 inches; dark brown (10YR 3/3) gravelly clay loam; moderate medium subangular blocky structure; firm; few fine roots; few faint brown (10YR 4/3) clay films on faces of peds; 35 percent gravel; neutral; abrupt irregular boundary.

C1—14 to 20 inches; yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) very gravelly sand; single grain; loose; 50 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

C2—20 to 80 inches; brown (10YR 5/3) very gravelly sand; single grain; loose; 55 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 12 to 20 inches
Depth to carbonates: 10 to 18 inches
Content of rock fragments: 0 to 15 percent in the Ap horizon, 10 to 35 percent in the Bt horizon, and 35 to 70 percent in the C horizon

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 or 3
Texture—gravelly loam

Bt horizon:
Color—hue of 10YR to 5YR, value of 3 to 5, and chroma of 3 or 4
Texture—gravelly clay loam

C horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—very gravelly sand

Celina Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Till and a thin layer of loess
Landform: Wisconsinan till plains
Position on the landform: Flats and slight rises
Slope range: 0 to 6 percent
Adjacent soils: Crosby, Kokomo, Lewisburg, and Miamian

Taxonomic classification: Fine, mixed, active, mesic Aquic Hapludalfs

Typical Pedon for Ross County

Celina silt loam, 2 to 6 percent slopes, about 5 miles northwest of Chillicothe, in Union Township; about 4,490 feet south of the intersection of Union Lane and Township Road 125, along Township Road 125 in Pleasant Valley Wildlife Area, then 500 feet west:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; common fine roots; 2 percent rock fragments; neutral; abrupt smooth boundary.

BE—9 to 15 inches; yellowish brown (10YR 5/4) silt loam; weak coarse and medium subangular blocky structure; friable; few fine roots; 2 percent rock fragments; neutral; clear smooth boundary.

2Bt1—15 to 24 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium and fine subangular blocky structure; friable; few fine roots; common distinct brown (10YR 5/3) and grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct grayish brown (10YR 5/2) and few medium distinct dark gray (10YR 4/1) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid; gradual smooth boundary.

2Bt2—24 to 32 inches; yellowish brown (10YR 5/4) silty clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common fine faint dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct dark gray (10YR 4/1) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common black (10YR 2/1) masses of iron and manganese oxide accumulation in the matrix; 10 percent rock fragments; strongly acid; clear smooth boundary.

2BC—32 to 37 inches; brown (10YR 5/3) clay loam; weak medium subangular blocky structure; firm; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 10 percent rock fragments; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cd1—37 to 48 inches; light olive brown (2.5Y 5/4) clay loam; massive; firm; common medium prominent light brownish gray (10YR 6/2) iron

depletions in the matrix; 10 percent gravel; violently effervescent; moderately alkaline; clear smooth boundary.

2Cd2—48 to 80 inches; yellowish brown (10YR 5/8) silt loam; massive; firm; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; 5 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to carbonates: 18 to 40 inches
Thickness of the loess mantle: 6 to 15 inches
Content of rock fragments: 0 to 2 percent in the Ap horizon, 2 to 15 percent in the 2Bt horizon, and 2 to 15 percent in the 2C horizon (2 to 25 percent in subhorizons)

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

BE horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam, silty clay loam, or clay loam

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silty clay, clay, clay loam, or silty clay loam

2BC horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—clay loam

2Cd horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6
Texture—loam, silt loam, or clay loam in the fine-earth fraction

Chavies Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Alluvium washed mainly from soils that formed in acid sandstone
Landform: Low stream terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Cidermill, Tioga, and Wyatt

Taxonomic classification: Coarse-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Chavies silt loam, rarely flooded, about 3 1/4 miles southwest of Eagle Mills, in Eagle Township, in Vinton County, Ohio; about 1,214 feet north and 1,188 feet west of the southeast corner of sec. 31, T. 10 N., R. 19 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, very pale brown (10YR 7/3) dry; weak medium subangular blocky structure parting to moderate fine granular; friable; common fine and few medium roots; moderately acid; clear smooth boundary.

BA—10 to 15 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine roots; many distinct brown (10YR 3/3) organic coatings on faces of peds; neutral; clear wavy boundary.

Bt1—15 to 24 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few medium dark brown (10YR 3/3) krotovinas; strongly acid; gradual wavy boundary.

Bt2—24 to 34 inches; yellowish brown (10YR 5/6) fine sandy loam; weak fine subangular blocky structure; very friable; very few fine dark yellowish brown (10YR 4/6) clay films on faces of peds; few medium dark brown (10YR 3/3) krotovinas; moderately acid; clear smooth boundary.

Bt3—34 to 57 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; very few fine roots; many distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; moderately acid; clear wavy boundary.

BC—57 to 70 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; few distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; moderately acid; clear wavy boundary.

C—70 to 80 inches; yellowish brown (10YR 5/6) loamy sand; single grain; loose; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to bedrock: More than 5 feet

Content of rock fragments: 0 to 5 percent in the Ap and Bt horizons and 0 to 15 percent in the C horizon

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—fine sandy loam or loam

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—fine sandy loam, loamy sand, or sandy loam in the fine-earth fraction

Cidermill Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the upper part and rapid in the lower part
Parent material: Silty and loamy material over stratified outwash deposits
Landform: Stream terraces
Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Chavies, Fitchville, Glenford, and Ockley

Taxonomic classification: Fine-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon for Ross County

Cidermill silt loam, 0 to 2 percent slopes, about 1.5 miles northeast of Londonderry, in Liberty Township; about 1,400 feet east and 20 feet south of the northwest corner of sec. 12, T. 8 N., R. 20 W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine and medium granular structure; friable; common fine roots; very strongly acid; abrupt smooth boundary.

Bt1—8 to 18 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct yellowish brown (10YR 5/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—18 to 24 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common medium distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine distinct brown (10YR 5/3) masses of iron accumulation in the matrix; common medium distinct black (10YR 2/1) masses of iron and manganese accumulation in the matrix; strongly acid; clear wavy boundary.

Bt3—24 to 30 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; firm; few fine roots; common medium faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine distinct brown (10YR 5/3) masses of iron accumulation in the matrix; common medium distinct black (10YR 2/1) masses of iron and manganese accumulation in the matrix; strongly acid; clear wavy boundary.

2Bt4—30 to 35 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; common medium faint brown (7.5YR 4/4) clay films on faces of peds; few fine distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; common medium distinct black (10YR 2/1) and strong brown (7.5YR 5/6) masses of iron and manganese accumulation in the matrix; strongly acid; clear wavy boundary.

2BC—35 to 43 inches; brown (7.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; 5 percent gravel; strongly acid; clear wavy boundary.

2C—43 to 80 inches; brown (7.5YR 4/4), stratified gravelly sandy loam and gravelly loamy sand; massive; very friable; 25 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Thickness of the loess mantle: 24 to 36 inches
Content of gravel: 0 to 5 percent in the Ap and Bt horizons, 0 to 60 percent in the 2Bt horizon, and 15 to 60 percent in the 2C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—clay loam, loam, fine sandy loam, or sandy loam in the fine-earth fraction

2C horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—sandy loam or loamy sand in the fine-earth fraction

Clifty Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Loamy alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Euclid, Haymond, Skidmore, and Spargus

Taxonomic classification: Fine-loamy, mixed, active, mesic Fluventic Dystrudepts

Typical Pedon for Ross County

Clifty silt loam, occasionally flooded (fig. 18), about 2.5 miles east of Charleston, in Harrison Township; about 120 feet north and 1,860 feet west of the southeast corner of sec. 2, T. 10 N., R. 20 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common medium and fine roots; common distinct dark brown (10YR 3/3) organic coatings on faces of peds; 2 percent rock fragments; very strongly acid; clear smooth boundary.

Bw1—10 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; common fine roots; common distinct dark brown (10YR 3/3) organic coatings on faces of peds; 5 percent rock fragments; strongly acid; clear smooth boundary.

Bw2—15 to 23 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; 10 percent rock fragments; strongly acid; clear smooth boundary.

Bw3—23 to 28 inches; yellowish brown (10YR 5/4) gravelly loam; weak medium subangular blocky structure; very friable; few fine roots; 15 percent rock fragments; strongly acid; clear smooth boundary.

C—28 to 80 inches; yellowish brown (10YR 5/4) very gravelly loam; massive; friable; few fine roots; 40 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches

Content of rock fragments: 0 to 10 percent in the Ap horizon, 0 to 40 percent in the Bw horizon, and 20 to 50 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or loam in the fine-earth fraction

C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 1 to 6
Texture—loam, silt loam, clay loam, or sandy loam in the fine-earth fraction

Coolville Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the profile and slow in the lower part of the subsoil
Parent material: A thin layer of loess over clayey residuum derived from acid shale
Landform: Hills
Position on the landform: Summits and shoulders
Slope range: 0 to 12 percent
Adjacent soils: Cruze and Tilsit

Taxonomic classification: Fine, mixed, active, mesic Aquultic Hapludalfs

Typical Pedon for Ross County

Coolville silt loam, 2 to 6 percent slopes, 1.7 miles northeast of Nipgen, in Huntington Township; about 200 feet northeast of the intersection of State Highway 772 and Township Road 161, along State Highway 772, then 2,010 feet north:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; friable; few medium and common fine roots; very strongly acid; abrupt smooth boundary.

BE—7 to 11 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; common fine roots; common faint yellowish brown (10YR 5/4) clay depletions on faces of peds; common prominent brown (10YR 4/3) organic coatings throughout; very strongly acid; clear smooth boundary.

Bt1—11 to 17 inches; strong brown (7.5YR 5/6) silty

clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; common prominent brown (10YR 5/3) clay depletions on faces of peds; very strongly acid; clear smooth boundary.

Bt2—17 to 20 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; common prominent brown (10YR 5/3) clay depletions on faces of peds; very strongly acid; clear smooth boundary.

2Bt3—20 to 24 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; few prominent black (10YR 2/1) masses of iron and manganese oxide accumulation on faces of peds; 2 percent rock fragments; strongly acid; clear wavy boundary.

2Bt4—24 to 28 inches; strong brown (7.5YR 5/6) silty clay; moderate medium subangular blocky structure; very firm; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common medium distinct yellowish red (5YR 5/6) masses of iron accumulation in the matrix; few prominent black (10YR 2/1) masses of iron and manganese oxide accumulation on faces of peds; very strongly acid; clear wavy boundary.

2Bt5—28 to 39 inches; yellowish red (5YR 4/6) silty clay; moderate medium subangular blocky structure; very firm; few fine roots; common distinct yellowish red (5YR 4/6) clay films on faces of peds; common fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt6—39 to 49 inches; strong brown (7.5YR 5/6) silty clay; moderate medium subangular blocky structure; very firm; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common medium distinct yellowish red (5YR 4/6) masses of iron accumulation in the matrix; many soft shale fragments; 2 percent rock fragments; very strongly acid; gradual wavy boundary.

2Cr—49 to 54 inches; yellowish brown (10YR 5/6), soft shale bedrock; few fine roots concentrated along vertical fracture faces.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: 40 to 60 inches
Thickness of the loess mantle: 14 to 26 inches
Content of rock fragments: 0 to 5 percent in the Ap and Bt horizons, 0 to 15 percent in the 2Bt horizon, and 0 to 30 percent in the 2C horizon (if it occurs)

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silty clay loam; silt loam in the upper part

2Bt horizon:
Color—hue of 5YR, 7.5YR, or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—silty clay loam, silty clay, or clay

2C horizon (if it occurs):
Color—hue of 2.5Y to 7.5YR, value of 4 to 6, and chroma of 2 to 8
Texture—silty clay loam in the fine-earth fraction

Crosby Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Parent material: Till and a thin layer of loess
Landform: Wisconsinan till plains
Position on the landform: Flats and slight rises
Slope range: 0 to 6 percent
Adjacent soils: Celina, Kokomo, and Miamian

Taxonomic classification: Fine, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon for Ross County

Crosby silt loam, 0 to 2 percent slopes, about 0.3 mile west of Clarksburg, in Deerfield Township, about 1,290 feet south of the intersection of County Road 127 and County Road 84:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; common fine roots; 2 percent rock fragments; slightly acid; abrupt smooth boundary.

Bt—10 to 17 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium prominent black (10YR 2/1) iron accumulation in the matrix; common medium prominent black (10YR 2/1) manganese concretions throughout; 5 percent rock fragments; slightly acid; clear wavy boundary.

Btg—17 to 25 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; common medium prominent black (10YR 2/1) masses of iron and manganese oxide accumulation in the matrix and on faces of peds; common medium prominent black (10YR 2/1) manganese concretions throughout; 5 percent rock fragments; slightly acid; clear wavy boundary.

B´t—25 to 31 inches; yellowish brown (10YR 5/4) clay loam; moderate coarse subangular blocky structure; firm; few fine roots; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; few prominent black (10YR 2/1) masses of iron and manganese accumulation and concretions throughout; 5 percent rock fragments; slightly acid; clear wavy boundary.

BCt—31 to 36 inches; yellowish brown (10YR 5/6) clay loam; weak coarse subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions; few medium distinct yellowish brown (10YR 5/8) masses of iron accumulation; common fine prominent light gray (10YR 7/2) weathered limestone fragments; 5 percent rock fragments; slightly effervescent in spots; moderately alkaline; clear wavy boundary.

C—36 to 41 inches; yellowish brown (10YR 5/4) loam; massive; firm; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; common medium faint yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium prominent light gray (10YR 7/2) weathered limestone fragments; 10 percent rock fragments; strongly effervescent; moderately alkaline; clear wavy boundary.

Cd—41 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; common medium faint yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium prominent light gray (10YR 7/2) weathered limestone fragments; 10 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Depth to carbonates: 20 to 40 inches
Thickness of the loess mantle: 0 to 18 inches
Content of rock fragments: 0 to 5 percent in the Ap horizon, 0 to 10 percent in the Bt horizon, and 1 to 12 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2
Texture—silt loam

Bt horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 6
Texture—silty clay loam, clay loam, silty clay, or clay

C and Cd horizons:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam

Cruze Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Colluvium and residuum derived mainly from acid shale with thin layers of siltstone or sandstone
Landform: Hills
Position on the landform: Shoulders, footslopes, and backslopes
Slope range: 6 to 35 percent
Adjacent soils: Brownsville, Shelocta, and Weikert

Taxonomic classification: Fine, mixed, semiactive, mesic Aquic Hapludults

Typical Pedon for Ross County

Cruze silt loam, 20 to 35 percent slopes, 3.5 miles south of Massieville, in Franklin Township; about 2,970 feet north of the intersection of U.S. Highway 23 and State Highway 372, along U.S. Highway 23, then 7,920 feet east:

A—0 to 2 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many fine and common medium roots; 10 percent rock fragments; very strongly acid; clear smooth boundary.

E—2 to 6 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; many fine and common medium roots; 10 percent rock fragments; very strongly acid; clear wavy boundary.

BE—6 to 9 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; common fine and few medium roots; few prominent light olive brown (2.5Y 5/4) clay depletions on faces of peds; 5 percent rock fragments; very strongly acid; clear wavy boundary.

Bt1—9 to 20 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine subangular blocky structure; firm; common fine and few medium roots; common faint yellowish brown (10YR 5/6) clay films on faces of peds; 5 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt2—20 to 25 inches; yellowish brown (10YR 5/6) silty clay; moderate fine and medium subangular blocky structure; firm; common fine and medium roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; many medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt3—25 to 37 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; many medium prominent grayish brown (2.5YR 5/2) iron depletions in the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.

2BC—37 to 48 inches; light olive brown (2.5Y 5/4) silty clay; weak coarse subangular blocky structure; firm; few distinct yellowish brown (10YR 5/4) clay films on vertical faces of peds; common medium distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 5 percent rock fragments; very strongly acid; abrupt smooth boundary.

2Cr—48 to 53 inches; light olive brown (2.5Y 5/4), rippable siltstone.

Range in Characteristics

Thickness of the solum: 36 to 60 inches
Depth to bedrock: 48 to 60 inches
Content of rock fragments: 0 to 15 percent in the A, E, and BE horizons, 0 to 35 percent in the Bt and 2Bt horizons, and 0 to 35 percent in the 2BC and 2Cr horizons (if they occur)

A or Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4
Texture—silt loam

E or BE horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam

Bt and 2Bt horizons:
Color—hue of 7.5YR, 10YR, or 2.5Y, value of 4 to 6, and chroma of 3 to 6
Texture—silty clay loam, silty clay, clay, or channery silty clay loam

2BC and 2C horizons (if they occur):
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 6
Texture—silty clay, clay, or silty clay loam in the fine-earth fraction

Eldean Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and rapid in the substratum
Parent material: Outwash
Landform: Wisconsinan outwash terraces
Position on the landform: Treads and risers
Slope range: 0 to 35 percent
Adjacent soils: Casco, Fox, Kendallville, Nineveh, Ockley, Rodman, and Warsaw

Taxonomic classification: Fine, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for Ross County

Eldean loam, 0 to 2 percent slopes (fig. 19), about 4.5 miles southeast of Chillicothe, in Liberty Township; about 1,320 feet west and 1,000 feet south of the northeast corner of sec. 6, T. 7 N., R. 21 W.

Ap—0 to 9 inches; brown (10YR 4/3) loam, yellowish brown (10YR 5/4) dry; weak medium granular structure; friable; common fine roots; 5 percent gravel; slightly acid; clear smooth boundary.

BE—9 to 13 inches; brown (7.5YR 4/4) loam; moderate fine subangular blocky structure; firm; few fine roots; many distinct dark yellowish brown (10YR 4/4) organic coatings on faces of peds; 5 percent gravel; moderately acid; clear smooth boundary.

Bt1—13 to 23 inches; yellowish red (5YR 4/6) gravelly clay; moderate medium subangular blocky structure; firm; few fine roots; common prominent brown (7.5YR 4/4) clay films on faces of peds; 20 percent gravel; moderately acid; clear wavy boundary.

Bt2—23 to 27 inches; yellowish red (5YR 4/6) gravelly clay; moderate medium subangular blocky structure; firm; many prominent brown (7.5YR 5/4) and common prominent brown (7.5YR 4/4) clay films on faces of peds; 30 percent gravel; slightly acid; clear wavy boundary.

2BCt—27 to 33 inches; brown (7.5YR 4/4) very gravelly loam; weak fine subangular blocky structure; friable; few distinct strong brown (7.5YR 5/6) clay films on faces of peds; 50 percent gravel; strongly effervescent; moderately alkaline; gradual smooth boundary.

2C—33 to 80 inches; brown (10YR 5/3) very gravelly sand; single grain; loose; very friable; 50 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to carbonates: 18 to 36 inches
Content of gravel: 0 to 30 percent in the Ap horizon and the upper part of the Bt horizon, 10 to 50 percent in the lower part of the Bt horizon, and 0 to 60 percent in the C horizon

Ap horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 or 4
Texture—loam or gravelly loam

BE horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam, silt loam, gravelly loam, or gravelly silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6
Texture—clay loam, clay, or sandy clay; the gravelly and very gravelly analogs of these textures in the lower part

2BC horizon:
Color—hue of 10YR, 7.5YR, or 5YR, value of 3 to 6, and chroma of 2 to 4
Texture—very gravelly loam, clay loam, sandy clay loam, or sandy loam

2C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—stratified sand, loamy sand, coarse sandy loam, and the gravelly and very gravelly analogs of these textures

Ernest Series

Depth class: Deep and very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Parent material: Colluvium derived from sandstone, siltstone, and shale
Landform: Hills
Position on the landform: Footslopes
Slope range: 15 to 25 percent
Adjacent soils: Brownsville, Omulga, Shelocta, and Wyatt

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Aquic Fragiudults

Typical Pedon

Ernest silt loam, 8 to 15 percent slopes, about 1.9 miles southwest of Mabee Corner, in Hamilton Township, in Jackson County, Ohio; about 650 feet south and 2,175 feet west of the northeast corner of sec. 28, T. 5 N., R. 19 W.

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine and medium roots; 3 percent rock fragments; moderately acid; abrupt smooth boundary.

BE—8 to 13 inches; strong brown (7.5YR 5/6) silt loam; weak medium subangular blocky structure;

firm; few fine roots; 10 percent rock fragments; moderately acid; clear wavy boundary.

Bt1—13 to 20 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; firm; few fine roots; few distinct brown (7.5YR 5/4) clay films on faces of peds; few faint very pale brown (10YR 7/4) clay depletions on vertical faces of peds; 10 percent rock fragments; strongly acid; clear wavy boundary.

Bt2—20 to 25 inches; yellowish brown (10YR 5/6) channery silt loam; moderate medium subangular blocky structure; firm; few fine roots; few distinct brown (7.5YR 5/4) clay films on faces of peds; common fine prominent light gray (10YR 7/2) iron depletions in the matrix; few prominent very pale brown (10YR 7/4) clay depletions on vertical faces of peds; few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 15 percent rock fragments; very strongly acid; clear wavy boundary.

Bt3—25 to 31 inches; yellowish brown (10YR 5/6) channery silt loam; moderate medium subangular blocky structure; firm; few fine roots; few distinct strong brown (7.5YR 5/6) clay films on faces of peds; few fine prominent light gray (10YR 7/1) iron depletions in the matrix; few prominent very pale brown (10YR 8/2) clay depletions on vertical faces of peds; common coarse distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; 20 percent rock fragments; very strongly acid; clear wavy boundary.

Btx1—31 to 42 inches; yellowish brown (10YR 5/6) channery loam; moderate very coarse prismatic structure; very firm; brittle; few distinct brown (7.5YR 5/4) clay films on vertical faces of peds; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; few prominent light gray (10YR 7/2) clay depletions on vertical faces of peds; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine prominent black (10YR 2/1) iron and manganese concretions throughout; 15 percent rock fragments; very strongly acid; gradual wavy boundary.

Btx2—42 to 48 inches; yellowish brown (10YR 5/6) channery loam; moderate very coarse prismatic structure; very firm; brittle; few distinct brown (7.5YR 5/4) clay films on vertical faces of peds; few fine and medium prominent very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix and along vertical faces of peds; few faint light yellowish brown (10YR 6/4) clay depletions on vertical faces of peds; 20 percent rock fragments; very strongly acid; gradual wavy boundary.

Btx3—48 to 62 inches; yellowish brown (10YR 5/6) channery silt loam; moderate very coarse prismatic structure; very firm; brittle; few distinct brown (7.5YR 5/4) clay films on vertical faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; 15 percent rock fragments; very strongly acid; clear wavy boundary.

C—62 to 70 inches; yellowish brown (10YR 5/6) loam; massive; firm; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; few prominent light gray (10YR 7/2) clay depletions in partings; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; 12 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 36 to 72 inches

Depth to bedrock: 60 or more inches

Depth to the fragipan: 20 to 36 inches

Content of rock fragments: 0 to 25 percent in the A 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 horizon:

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

Texture—silt loam

Bt horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6

Texture—silt loam, silty clay loam, channery silt loam, or channery silty clay loam

Btx horizon:

Color—hue of 10YR or 7.5YR, value of 5, and chroma of 4 to 6

Texture—loam, silt loam, clay loam, or the channery analogs of these textures

C horizon:

Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6

Texture—silty clay loam, silt loam, loam, clay loam, or the channery analogs of these textures

Euclid Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Silty deposits
Landform: Stream terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Gessie, Glenford, Haymond, and Sloan

Taxonomic classification: Fine-silty, mixed, active, nonacid, mesic Aeric Endoaquepts

Typical Pedon for Ross County

Euclid silt loam, rarely flooded, about 2 miles east of Bainbridge, in Twin Township; about 1,120 feet south-southeast of the intersection of County Road 156 and Township Road 172, along County Road 156, then 595 feet east:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many fine roots; common fine prominent black (N 2.5/0) masses of iron and manganese oxide accumulation throughout; slightly acid; abrupt smooth boundary.

Bg—10 to 13 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; many fine roots; common medium faint brown (10YR 4/3) masses of iron accumulation in the matrix; common fine prominent black (N 2.5/0) masses of iron and manganese oxide accumulation throughout; slightly acid; clear wavy boundary.

Bw—13 to 26 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; common medium prominent grayish brown (2.5Y 5/2) iron depletions in the matrix; many medium prominent grayish brown (2.5Y 5/2) clay depletions on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many fine prominent black (N 2.5/0) iron and manganese concretions throughout; slightly acid; clear wavy boundary.

BC—26 to 47 inches; brown (7.5YR 4/4) silt loam; weak coarse subangular blocky structure; friable; few fine roots; many medium prominent grayish brown (2.5Y 5/2) iron depletions in the matrix; common medium distinct brown (10YR 5/3) masses of iron accumulation in the matrix; many fine prominent black (N 2.5/0) iron and manganese concretions throughout; slightly acid; clear wavy boundary.

C—47 to 80 inches; brown (7.5YR 4/4) and strong brown (7.5YR 5/6) silt loam; massive; friable; many medium prominent grayish brown (2.5Y 5/2) iron depletions in the matrix; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; many fine prominent black (N 2.5/0) iron and manganese concretions throughout; slightly acid.

Range in Characteristics

Thickness of the solum: 30 to 55 inches
Content of rock fragments: 0 to 2 percent in the Ap and B horizons and 0 to 5 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bg and Bw horizons:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 6
Texture—silt loam or silty clay loam

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam, loam, or silty clay loam

C horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 to 6
Texture—silt loam, silty clay loam, or loam

Fitchville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Stratified silty glaciolacustrine material
Landform: Lake plains and stream terraces
Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Glenford and Mentor

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for Ross County

Fitchville silt loam, 0 to 2 percent slopes, about 5.85 miles northwest of Moorsville, in Green Township;

about 1,800 feet east and 1,500 feet north of the southwest corner of sec. 35, T. 9 N., R. 21 W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; many fine roots; few very fine prominent black (10YR 2/1) iron and manganese oxide accumulations throughout; slightly acid; abrupt smooth boundary.

Bt1—8 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; moderate fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine prominent black (10YR 2/1) iron and manganese concretions throughout; moderately acid; clear wavy boundary.

Bt2—15 to 22 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; firm; few fine roots; many prominent grayish brown (10YR 5/2) clay films on faces of peds; many coarse prominent grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; many fine prominent black (10YR 2/1) iron and manganese concretions throughout; strongly acid; clear smooth boundary.

Bt3—22 to 33 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; firm; few fine roots; many prominent gray (10YR 5/1) clay films on faces of peds; many coarse prominent grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine prominent black (10YR 2/1) iron and manganese concretions throughout; strongly acid; clear smooth boundary.

Bt4—33 to 43 inches; yellowish brown (10YR 5/4) silty clay loam; moderate coarse subangular blocky structure; firm; very few fine roots; many prominent gray (10YR 5/1) clay films on faces of peds; many coarse prominent grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; many fine prominent black (10YR 2/1) iron and manganese concretions throughout; strongly acid; clear smooth boundary.

BCt—43 to 56 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse subangular blocky structure; firm; few prominent gray (10YR 5/1) clay films on vertical faces of peds; many coarse prominent grayish brown (10YR 5/2) iron depletions in the matrix; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; common fine prominent black (10YR 2/1) iron and manganese concretions throughout; moderately acid; clear smooth boundary.

C—56 to 80 inches; yellowish brown (10YR 5/4) silty clay loam; massive; firm; many coarse prominent grayish brown (10YR 5/2) iron depletions in the matrix; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common fine prominent black (10YR 2/1) iron and manganese concretions throughout; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 70 inches

Ap horizon:
Color—hue of 2.5Y or 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR, 10YR, or 2.5Y, value of 4 to 6, and chroma of 1 to 6
Texture—silt loam or silty clay loam with thin strata of loam or clay loam

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 6
Texture—silt loam or silty clay loam with thin strata of loam or clay loam

Fox Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and rapid or very rapid in the substratum
Parent material: Thin loess and loamy alluvium overlying stratified sandy outwash
Landform: Wisconsinan outwash terraces
Position on the landform: Treads and risers
Slope range: 6 to 30 percent
Adjacent soils: Alexandria, Casco, Eldean, Kendallville, Ockley, Rodman, and Warsaw

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for Ross County

Fox loam, 6 to 12 percent slopes, eroded, about 5.3

miles northwest of Richmond Dale, in Liberty Township; about 630 feet east and 100 feet north of the southwest corner of sec. 18, T. 7 N., R. 20 W.

Ap—0 to 9 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; 10 percent mixing of strong brown (7.5YR 5/6) material from the Bt horizon; weak fine and medium granular structure; friable; common medium and fine roots; 3 percent gravel; neutral; abrupt wavy boundary.

Bt1—9 to 18 inches; strong brown (7.5YR 5/6) gravelly clay loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct brown (7.5YR 4/4) clay films on faces of peds; 20 percent gravel; moderately acid; clear wavy boundary.

Bt2—18 to 25 inches; brown (7.5YR 4/4) gravelly loam; moderate medium subangular blocky structure; friable; few fine roots; few fine distinct brown (7.5YR 4/4) clay films on faces of peds; 20 percent gravel; moderately acid; clear wavy boundary.

Bt3—25 to 34 inches; brown (7.5YR 4/4) gravelly clay loam; moderate medium subangular blocky structure; friable; few fine roots; few fine distinct brown (7.5YR 5/4) clay films on faces of peds; 30 percent gravel; moderately acid; very slightly effervescent around pebbles; clear irregular boundary.

C—34 to 80 inches; brown (7.5YR 5/3), stratified gravelly and very gravelly loamy sand; single grain; loose; 40 percent gravel; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Depth to carbonates: 24 to 40 inches
Thickness of the loess mantle: 0 to 12 inches
Content of gravel: 0 to 20 percent in the A horizon, 0 to 30 percent in the Bt horizon, and 0 to 60 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—loam in the fine-earth fraction

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6
Texture—loam, clay loam, or sandy clay loam; sandy loam included (in the fine-earth fraction) in the lower part of the horizon

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 to 4
Texture—loamy sand or sand in the fine-earth fraction

Gessie Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Recent alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Clifty, Euclid, Ross, and Stonelick

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluventic Eutrudepts

Typical Pedon for Ross County

Gessie silt loam, occasionally flooded, about 0.5 mile east of Andersonville, in Union Township; about 2,970 feet east-northeast of the intersection of State Route 104 and Township Road 130, then 900 feet east:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine and common medium roots; slightly effervescent; moderately alkaline; clear smooth boundary.

Bw1—10 to 20 inches; dark grayish brown (10YR 4/2) loam; weak fine subangular blocky structure; friable; common fine and few medium roots; 5 percent rock fragments; slightly effervescent; moderately alkaline; clear smooth boundary.

Bw2—20 to 33 inches; dark grayish brown (10YR 4/2) loam; weak fine subangular blocky structure; friable; few fine roots; 5 percent rock fragments; slightly effervescent; moderately alkaline; clear smooth boundary.

Bw3—33 to 48 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; friable; few fine roots; slightly effervescent; moderately alkaline; clear smooth boundary.

C—48 to 80 inches; dark yellowish brown (10YR 4/4) loam; massive; friable; slightly effervescent; moderately alkaline.

Range in Characteristics

Occurrence of carbonates: Throughout the profile

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4

Texture—loam or silt with strata of sandy loam

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—loam or silt loam with strata of sandy loam or loamy sand

Gilpin Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum derived from interbedded shale, siltstone, and sandstone
Landform: Hills
Position on the landform: Shoulders and summits
Slope range: 6 to 12 percent
Adjacent soils: Berks, Coolville, Cruze, Tilsit, and Tarhollow

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Typic Hapludults

Typical Pedon for Ross County

Gilpin silt loam, in an area of Gilpin-Tilsit complex, 6 to 12 percent slopes, about 2.3 miles southeast of Richmond Dale, in Jefferson Township; about 800 feet south and 1,000 feet east of the northwest corner of sec. 12, T. 7 N., R. 20 W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine and medium roots; 2 percent rock fragments; very strongly acid; abrupt wavy boundary.
E—3 to 6 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; many fine and medium roots; common prominent dark brown (10YR 3/3) organic coatings on faces of peds; 2 percent rock fragments; very strongly acid; gradual smooth boundary.
BE—6 to 11 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; common fine and medium roots; 10 percent rock fragments; very strongly acid; clear wavy boundary.
Bt1—11 to 15 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; 5 percent rock fragments; strongly acid; clear wavy boundary.
Bt2—15 to 21 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common prominent brown (7.5YR 5/4) clay films on faces of peds; 5 percent rock fragments; strongly acid; clear wavy boundary.
Bt3—21 to 27 inches; strong brown (7.5YR 5/6) channery clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common prominent brown (7.5YR 5/4) clay films on faces of peds; 20 percent rock fragments; strongly acid; clear wavy boundary.
BC—27 to 33 inches; strong brown (7.5YR 5/6) channery sandy loam; massive; friable; few very fine roots; 20 percent rock fragments; strongly acid; abrupt smooth boundary.
R—33 to 35 inches; fractured sandstone bedrock.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: 2 to 10 percent in the A horizon, 5 to 40 percent in the Bt horizon, and 30 to 90 percent in the C horizon (if it occurs)

A horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4
Texture—silt loam

E and BE horizons:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 5
Texture—silt loam

Bt and BC horizons:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 6
Texture—silt loam, loam, sandy loam, clay loam, or silty clay loam in the fine-earth fraction

C horizon (if it occurs):
Color—hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 6
Texture—silt loam, loam, clay loam, sandy loam, or silty clay loam in the fine-earth fraction

Glenford Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Stratified silty glaciolacustrine material
Landform: Lake terraces and stream terraces

Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Fitchville, Mentor, and Ockley

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon for Ross County

Glenford silt loam, 0 to 2 percent slopes (fig. 20), about 4 miles southeast of Chillicothe, in Springfield Township; about 2,215 feet east and 1,650 feet north of the southwest corner of sec. 25, T. 8 N., R. 21 W.

Ap—0 to 10 inches; dark brown (10YR 4/3) silt loam, light yellowish brown (2.5Y 6/4) dry; weak coarse subangular blocky structure parting to moderate medium granular; friable; few fine roots; strongly acid; abrupt smooth boundary.

BE—10 to 14 inches; yellowish brown (10YR 5/4) silt loam; weak medium platy structure parting to moderate fine subangular blocky; friable; very few fine roots; very few faint yellowish brown (10YR 5/4) clay films on faces of peds; many fine distinct light yellowish brown (2.5Y 6/3) clay depletions on faces of peds; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; few coarse dark yellowish brown (10YR 4/4) organic coatings on faces of peds; strongly acid; gradual smooth boundary.

Bt1—14 to 20 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; very few fine roots; common distinct light olive brown (2.5Y 5/4) clay films on faces of peds; moderate medium prominent light yellowish brown (2.5Y 6/3) clay depletions on faces of peds; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; strongly acid; clear wavy boundary.

Bt2—20 to 28 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse subangular blocky structure; firm; common prominent light olive brown (2.5Y 5/4) and yellowish brown (10YR 5/6) clay films on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; very strongly acid; gradual smooth boundary.

Bt3—28 to 38 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; common prominent light olive brown (2.5Y 5/4) clay films on faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; very strongly acid; clear wavy boundary.

Bt4—38 to 45 inches; yellowish brown (10YR 5/4) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common prominent light olive brown (2.5Y 5/4) clay films on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; very few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; very strongly acid; clear smooth boundary.

BC—45 to 52 inches; yellowish brown (10YR 5/6) silt loam; weak thick platy structure parting to weak medium subangular blocky; firm; few prominent light brownish gray (2.5Y 6/2) clay films on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; strongly acid; clear smooth boundary.

C—52 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; firm; many coarse prominent gray (10YR 6/1) iron depletions in the matrix; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Content of rock fragments: 0 to 3 percent in the BC horizon and 0 to 5 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

BE horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

Haubstadt Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Parent material: Loess and the underlying stratified outwash, old alluvium, or lacustrine sediment of the Illinoian glaciation
Landform: High terraces and lake plains
Position on the landform: Treads, risers, and toeslopes
Slope range: 2 to 12 percent
Adjacent soils: Negley and Rossmoyne

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Fragiudalfs

Typical Pedon for Ross County

Haubstadt silt loam, 2 to 6 percent slopes (fig. 21), about 4.4 miles west-southwest of Bainbridge, in Paxton Township; about 5,310 feet west-northwest of the intersection of State Route 41 and Brier Road, along Brier Road, then 570 feet north:

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure parting to moderate fine granular; friable; many fine roots; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation on faces of peds; slightly acid; abrupt smooth boundary.

Bt1—9 to 17 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium and fine subangular blocky structure; friable; common fine roots; common prominent brown (7.5YR 5/4) clay films on faces of peds; few medium distinct brown (10YR 5/3) clay depletions on faces of peds; few fine distinct strong brown (7.5YR 5/8) masses of iron oxide accumulation in the matrix; very strongly acid; clear wavy boundary.

Bt2—17 to 23 inches; strong brown (7.5YR 5/6) silty clay loam; weak coarse subangular blocky structure parting to moderate medium subangular blocky; firm; common fine roots; many prominent pale brown (10YR 6/3) and common distinct yellowish brown (10YR 5/6) clay films on faces of peds; many common prominent gray (10YR 6/1) iron depletions in the matrix; extremely acid; clear wavy boundary.

Btx1—23 to 29 inches; strong brown (7.5YR 5/6) silty clay loam; weak coarse prismatic structure parting to strong coarse subangular blocky; very firm and brittle; few fine roots on prism faces; common prominent gray (10YR 5/1) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common fine distinct strong brown (7.5YR 5/8) and black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; extremely acid; abrupt wavy boundary.

2Btx2—29 to 46 inches; yellowish brown (10YR 5/4) silty clay loam; strong very coarse prismatic structure; extremely firm and brittle; few very fine roots on prism faces; common fine prominent gray (10YR 5/1) clay films on vertical faces of peds; few medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; fine medium prominent black (10YR 2/1) masses of iron and manganese oxide accumulation on faces of peds; 2 percent rock fragments; extremely acid; clear smooth boundary.

2Btx3—46 to 60 inches; yellowish brown (10YR 5/4) silty clay loam; weak very coarse prismatic structure parting to strong medium subangular blocky; very firm and brittle; few prominent gray (10YR 5/1) and light brownish gray (10YR 6/2) clay films on vertical faces of peds; few fine prominent strong brown (7.5YR 5/8) and few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; 2 percent rock fragments; extremely acid; clear wavy boundary.

2Bt—60 to 80 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few distinct brown (10YR 5/3) and yellowish brown (10YR 5/4) and few prominent dark gray (10YR 4/1) clay films on faces of peds; few coarse prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; 5 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 60 to 90 inches
Thickness of the loess: 16 to 40 inches
Depth to the fragipan: 16 to 38 inches
Content of rock fragments: 2 to 15 percent in the 2Btx horizon and 5 to 20 percent in the 2Bt horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam

2Btx and 2Bt horizons:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—loam, silt loam, clay loam, or silty clay loam

C horizon (if it occurs):
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 6
Texture—loam, silt loam, clay loam, or silty clay loam

Haymond Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Silty alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Clifty, Gessie, Sloan, Spargus, and Tioga

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon for Ross County

Haymond silt loam, occasionally flooded, about 2.5 miles southeast of Londonderry, in Jefferson Township; about 2,300 feet south and 390 feet east of the northwest corner of sec. 25, T. 7 N., R. 20 W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; few fine roots; neutral; clear wavy boundary.
Bw1—9 to 18 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; very few fine roots; neutral; clear wavy boundary.
Bw2—18 to 37 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; slightly acid; clear wavy boundary.
Bw3—37 to 62 inches; dark yellowish brown (10YR 4/4) silt loam; weak very coarse subangular blocky structure; friable; thin strata of loam; slightly acid; clear wavy boundary.
C—62 to 80 inches; dark yellowish brown (10YR 4/4), stratified silt loam and loam; massive; friable; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Content of rock fragments: 0 to 5 percent below a depth of 40 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam, loam, or fine sandy loam

Henshaw Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow
Parent material: Silty alluvium derived from calcareous loess
Landform: Stream terraces
Position on the landform: Treads
Slope range: 0 to 4 percent
Adjacent soils: Patton

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Hapludalfs
Taxadjunct features: The Henshaw soils in this survey area have more gray in the solum than is defined as the range for the series. This difference does not significantly affect the use and management of the soils. These soils are classified as fine-silty, mixed, mesic Aeric Epiaqualfs.

Typical Pedon

Henshaw silt loam, 0 to 4 percent slopes, about 2.5 miles south of South Bloomfield, in Harrison Township, in Pickaway County, Ohio; about 1,000 feet north and 430 feet east of the southwest corner of sec. 23, T. 2 N., R. 22 W.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and medium granular structure; friable; many roots; slightly acid; abrupt smooth boundary.
E—8 to 13 inches; brown (10YR 5/3) silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; common medium

distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; grayish brown (2.5Y 5/2) silt loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; friable; few roots; few distinct olive brown (2.5Y 4/4) clay films on faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

Bt2—21 to 28 inches; yellowish brown (10YR 5/4) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common distinct dark gray (10YR 4/1) clay films on vertical faces of peds; few distinct olive brown (2.5Y 4/4) clay films on horizontal faces of peds; many medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; slightly acid; gradual wavy boundary.

Bt3—28 to 37 inches; yellowish brown (10YR 5/6) silty clay loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; many distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few distinct brown (10YR 4/3) clay films on horizontal faces of peds; common medium prominent grayish brown (2.5YR 5/2) iron depletions in the matrix; few fine distinct brown (7.5YR 4/4) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

BC—37 to 42 inches; olive brown (2.5Y 4/4) silt loam; weak medium and coarse subangular blocky structure; friable; very few faint dark grayish brown (10YR 4/2) clay films on vertical faces of peds; common medium distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; clear smooth boundary.

C1—42 to 54 inches; grayish brown (2.5Y 5/2) silt loam; massive with horizontal bedding; friable; common medium distinct yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; slightly effervescent; moderately alkaline; clear smooth boundary.

C2—54 to 62 inches; yellowish brown (10YR 5/6) silt loam; massive with horizontal bedding; friable; common medium distinct grayish brown (2.5Y 6/2) iron depletions in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to carbonates: 30 to 60 inches

Ap and E horizons:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 6
Texture—silt loam or silty clay loam

BC horizon:
Color—hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 to 4
Texture—silt loam or silty clay loam

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 6
Texture—silt loam or silty clay loam; thin strata of loam, clay loam, or silty clay in some pedons

Hickory Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Illinoian till
Landform: Illinoian till plains
Position on the landform: Footslopes and backslopes
Slope range: 12 to 35 percent
Adjacent soils: Alexandria, Cruze, and Negley

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for Ross County

Hickory silt loam, 20 to 35 percent slopes, eroded, about 2.25 miles south of Adelphi, in Colerain Township; about 2,400 feet east and 1,100 feet north of the southwest corner of sec. 12, T. 10 N., R. 20 W.

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; 5 percent strong brown (7.5YR 5/6) subsoil material; moderate medium granular structure; friable; many fine roots; 5 percent rock fragments; slightly acid; clear smooth boundary.

BE—7 to 13 inches; strong brown (7.5YR 5/6) silt loam; moderate fine subangular blocky structure;

friable; few fine roots; common distinct brown (7.5YR 5/4) clay films on faces of peds; common medium distinct brown (10YR 4/3) organic coatings on faces of peds; 5 percent rock fragments; moderately acid; gradual smooth boundary.

Bt1—13 to 20 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common prominent yellowish brown (10YR 5/4) clay films on faces of peds; 5 percent rock fragments; strongly acid; gradual smooth boundary.

Bt2—20 to 31 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; many prominent yellowish brown (10YR 5/4) clay films on faces of peds; few medium prominent black (10YR 2/1) manganese concretions throughout; 10 percent rock fragments; moderately acid; clear wavy boundary.

BC—31 to 46 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; firm; few prominent light brownish gray (10YR 6/2) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common fine prominent black (10YR 2/1) manganese concretions throughout; 10 percent rock fragments; slightly acid; clear wavy boundary.

C1—46 to 57 inches; yellowish brown (10YR 5/4) clay loam; massive; firm; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common medium prominent brownish yellow (10YR 6/8) masses of iron accumulation in the matrix; common fine prominent black (10YR 2/1) manganese concretions throughout; 10 percent rock fragments; slightly alkaline; clear smooth boundary.

C2—57 to 80 inches; yellowish brown (10YR 5/4) clay loam; massive; firm; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine prominent black (10YR 2/1) manganese concretions throughout; 5 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 80 inches
Thickness of the loess mantle: 0 to 18 inches
Depth to carbonates: 40 to 80 inches
Content of rock fragments: 0 to 5 percent in the Ap horizon and 2 to 15 percent in the Bt and C horizons

Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—clay loam or silty clay loam in the upper part and clay loam or gravelly clay loam in the lower part

BC horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam or gravelly clay loam

C horizon:
Color—hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 2 to 6
Texture—clay loam or loam in the fine-earth fraction

Huntington Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Gessie and Stonelick

Taxonomic classification: Fine-silty, mixed, active, mesic Fluventic Hapludolls

Typical Pedon for Ross County

Huntington silt loam, occasionally flooded, about 3.5 miles southwest of Richmond Dale, in Franklin Township; about 4,220 feet southwest of the intersection of County Road 205 and Township Road 203, along County Road 205, then 3,950 feet east:

Ap—0 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure parting to moderate fine and medium granular; friable; few fine roots; slightly acid; abrupt smooth boundary.

BA—12 to 20 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; friable;

few fine roots; slightly acid; clear smooth boundary.

Bw1—20 to 30 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; few fine roots; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; clear smooth boundary.

Bw2—30 to 55 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; slightly acid; clear smooth boundary.

C1—55 to 71 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; slightly acid; clear smooth boundary.

C2—71 to 80 inches; brown (10YR 5/3) gravelly loamy sand; massive; loose; 15 percent gravel; very slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 20 inches
Content of gravel: 0 to 3 percent in the Ap and Bw horizons and 0 to 30 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture—silt loam

BA horizon:
Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam, loam, loamy sand, or sandy loam in the fine-earth fraction

Kendallville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and moderately slow in the substratum
Parent material: Loamy till and the overlying outwash and a thin layer of loess
Landform: Kames
Position on the landform: Backslopes, summits, shoulders, and footslopes
Slope range: 0 to 35 percent
Adjacent soils: Casco, Fox, Eldean, Miamian, Ockley, and Rodman

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for Ross County

Kendallville silt loam, in an area of Kendallville-Eldean complex, 6 to 12 percent slopes, eroded, about 2.75 miles south-southeast of Kingston, in Green Township; about 1,600 feet west and 900 feet north of the southeast corner of sec. 15, T. 9 N., R. 21 W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; 10 percent mixing of strong brown (7.5YR 4/6) material from the Bt horizon; weak medium subangular blocky structure; friable; common fine roots; 5 percent rock fragments; slightly acid; abrupt smooth boundary.

2Bt1—9 to 16 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; very few fine roots; common prominent yellowish brown (10YR 5/4) clay films on faces of peds; common prominent dark yellowish brown (10YR 4/4) organic coatings on faces of peds; 10 percent rock fragments, mostly rounded igneous pebbles; strongly acid; clear smooth boundary.

2Bt2—16 to 21 inches; strong brown (7.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; very few fine roots; many prominent yellowish brown (10YR 5/4) clay films on faces of peds; 10 percent rock fragments, mostly rounded igneous pebbles; strongly acid; gradual smooth boundary.

2Bt3—21 to 26 inches; dark yellowish brown (10YR 4/6) gravelly clay loam; moderate medium subangular blocky structure; firm; very few fine roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; 15 percent rock fragments, mostly rounded igneous pebbles; very strongly acid; clear smooth boundary.

3Bt4—26 to 33 inches; yellowish brown (10YR 5/4) loam; moderate medium subangular blocky structure; firm; common faint yellowish brown (10YR 5/4) clay films on faces of peds; 10 percent rock fragments, mostly subrounded and of mixed origin; moderately acid; clear smooth boundary.

3BCt—33 to 39 inches; yellowish brown (10YR 5/4) loam; weak coarse subangular blocky structure; firm; few faint yellowish brown (10YR 5/4) clay films on vertical faces of peds; 10 percent rock fragments, mostly subrounded and of mixed origin;

slightly effervescent; slightly alkaline; clear smooth boundary.

3C—39 to 80 inches; brown (10YR 5/3) loam; massive; very firm; 5 percent rock fragments, mostly subrounded and of mixed origin; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 25 to 40 inches
Depth to carbonates: 20 to 40 inches
Thickness of the loess mantle: 0 to 12 inches
Depth to the underlying till material: Less than 40 inches
Content of rock fragments: 0 to 15 percent in the Ap horizon, 5 to 30 percent in the Bt and 2Bt horizons, and 2 to 15 percent in the 2C horizon
Other features: The Bt horizon occurs only in areas where there is a loess cap.

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 3
Texture—silt loam

Bt horizon (if it occurs):
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam in the fine-earth fraction

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—loam or clay loam in the fine-earth fraction

3Bt or 3BC horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—loam or clay loam in the fine-earth fraction

3C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam or clay loam in the fine-earth fraction

Kinn Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the recent alluvium and moderately slow in the buried soil
Parent material: Recent alluvium over a dark soil
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Gessie, Patton, Sloan, and Warsaw

Taxonomic classification: Fine-loamy, mixed, superactive, calcareous, mesic Oxyaquic Udifluvents

Typical Pedon for the Series

Kinn silt loam, occasionally flooded (fig. 22), about 2 miles southeast of Kingston, in Green Township, in Ross County, Ohio; about 1,700 feet east and 2,500 feet north of the southwest corner of sec. 11, T. 9 N., R. 21 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam that contains 10 percent brownish yellow (10YR 6/6) strata of sandy loam; brown (10YR 5/3) dry; weak moderate and coarse subangular blocky structure parting to weak medium granular; friable; many fine roots; 2 percent gravel; strongly effervescent; moderately alkaline; abrupt smooth boundary.

A—10 to 20 inches; brown (10YR 4/3) silt loam that contains 10 percent brownish yellow (10YR 6/6) strata of sandy loam; weak medium subangular blocky structure parting to moderate medium granular; friable; few fine roots; common distinct dark brown (10YR 3/3) organic coatings on vertical faces of peds; 2 percent gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

Ab1—20 to 25 inches; dark brown (10YR 3/3) silt loam; weak coarse subangular blocky structure parting to moderate fine subangular blocky; friable; few fine roots; common faint very dark grayish brown (10YR 3/2) organic coatings on vertical faces of peds; 2 percent gravel; slightly effervescent; slightly alkaline; abrupt wavy boundary.

Ab2—25 to 38 inches; very dark gray (10YR 3/1) loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few fine roots; 5 percent gravel; slightly effervescent; slightly alkaline; gradual smooth boundary.

Bwb—38 to 50 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; firm; very few fine roots; many coarse prominent dark gray (10YR 4/1) iron depletions in the matrix; 5 percent gravel; strongly effervescent; slightly alkaline; clear smooth boundary.

C—50 to 56 inches; strong brown (7.5YR 5/6), stratified sandy loam and silty clay loam; massive; firm; many coarse prominent dark gray (10YR 4/1) iron depletions in the matrix; 2 percent gravel; strongly effervescent; slightly alkaline; clear smooth boundary.

Cg1—56 to 62 inches; dark gray (10YR 4/1), stratified silt loam and sandy loam; massive; firm; 2 percent

gravel; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Cg2—62 to 80 inches; dark gray (10YR 4/1) gravelly coarse sandy loam; massive; very friable; 25 percent gravel; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the recent alluvium: 18 to 36 inches
Occurrence of carbonates: Throughout the profile
Content of rock fragments: 0 to 5 percent in the Ap and A horizons, 0 to 15 percent in the Ab and Bwb horizons, and 0 to 70 percent in the C and Cg horizons

Ap horizon:
Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 or 3
Texture—silt loam

A horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 or 3
Texture—silt loam

Ab horizon:
Color—hue of 10YR, 2.5Y, or N, value of 2 to 3, and chroma of 0 to 3
Texture—silt loam, loam, silty clay loam, or clay loam

Bwb horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 6
Texture—loam, clay loam, or silt loam

C and Cg horizons:
Color—hue of 10YR, 2.5Y, or 7.5YR, value of 3 to 5, and chroma of 1 to 6
Texture—stratified silty clay loam to sandy loam in the fine-earth fraction

Kokomo Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately slow in the subsoil and slow in the substratum
Parent material: Loamy material and till
Landform: Wisconsinan till plains
Position on the landform: Flats and depressions
Slope range: 0 to 2 percent
Adjacent soils: Celina, Crosby, and Miamian

Taxonomic classification: Fine, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for Ross County

Kokomo silty clay loam, about 2.2 miles south of Clarksburg, in Deerfield Township; about 1,800 feet north-northeast of the intersection of County Road 127 and Township Road 97:

Ap—0 to 9 inches; very dark gray (10YR 3/1) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; friable; common fine roots; 2 percent rock fragments; slightly acid; abrupt smooth boundary.

A—9 to 18 inches; black (10YR 2/1) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure; friable; common fine roots; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; 2 percent rock fragments; slightly acid; clear smooth boundary.

Btg—18 to 27 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; few fine roots; many distinct dark gray (10YR 4/1) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/4) masses of iron accumulation in the matrix; few fine faint very dark grayish brown (10YR 3/2) masses of iron and manganese oxide accumulation in the matrix; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; 2 percent rock fragments; neutral; clear wavy boundary.

Bt1—27 to 33 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many distinct grayish brown (10YR 5/2) clay films on vertical faces of peds and common distinct grayish brown (10YR 5/2) clay films on horizontal faces of peds; many medium distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 2 percent rock fragments; neutral; clear wavy boundary.

Bt2—33 to 42 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; firm; few fine roots; common distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; many medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 2 percent rock fragments; neutral; clear wavy boundary.

C1—42 to 55 inches; yellowish brown (10YR 5/4) loam; massive; firm; common medium distinct grayish brown (10YR 5/2) iron depletions in the

matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few fine grayish brown (10YR 5/2) coatings along vertical seams; common medium prominent light gray (10YR 7/2) weathered limestone fragments; 10 percent rock fragments; strongly effervescent; moderately alkaline; clear wavy boundary.

C2—55 to 80 inches; yellowish brown (10YR 5/4) loam; massive; firm; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; few medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common medium prominent light gray (10YR 7/2) weathered limestone fragments; 10 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 36 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches
Depth to carbonates: 36 to 60 inches
Content of rock fragments: 0 to 2 percent in the A and Bt horizons and 2 to 10 percent in the C horizon

Ap and A horizons:
Color—hue of 10YR, value of 2 or 3, and chroma of 1
Texture—silty clay loam or silt loam

Btg and Bt horizons:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 to 4
Texture—silty clay loam, silty clay, or clay loam

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—loam

Latham Series

Depth class: Moderately deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Residuum derived from soft acid shale
Landform: Hills
Position on the landform: Backslopes, shoulders, and summits
Slope range: 6 to 35 percent
Adjacent soils: Brownsville, Coolville, Cruze, Gilpin, Shelocta, and Wharton

Taxonomic classification: Fine, mixed, semiactive, mesic Aquic Hapludults

Typical Pedon for Ross County

Latham silt loam, 12 to 20 percent slopes, eroded, about 6.5 miles southeast of Chillicothe; about 1,200 feet east and 1,650 feet south of the northwest corner of sec. 6, T. 8 N., R. 20 W.

Ap—0 to 4 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; specks of material from the Bt horizon; weak fine granular structure; friable; many medium and fine roots; common soft rock fragments; strongly acid; abrupt smooth boundary.

Bt1—4 to 11 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine subangular blocky structure; friable; common medium and fine roots; common faint yellowish brown (10YR 5/6) and few distinct strong brown (7.5YR 5/6) clay films on faces of peds; common soft rock fragments; very strongly acid; clear wavy boundary.

Bt2—11 to 14 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm; common medium and fine roots; common faint yellowish brown (10YR 5/6) and few distinct strong brown (7.5YR 5/6) clay films on faces of peds; few fine prominent light grayish brown (10YR 6/2) iron depletions in the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.

Bt3—14 to 22 inches; strong brown (7.5YR 5/6) silty clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct light brownish gray (10YR 6/2) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 10 percent rock fragments; very strongly acid; clear wavy boundary.

Bt4—22 to 31 inches; yellowish brown (10YR 5/6) channery silty clay; moderate medium subangular blocky structure; firm; few fine roots; common faint yellowish brown (10YR 5/6) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 20 percent rock fragments; very strongly acid; clear wavy boundary.

Cr—31 to 35 inches; light olive brown (2.5Y 5/4), interbedded shale and siltstone; light brownish gray (10YR 6/2) coatings on fracture faces.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: 0 to 15 percent in the A or Ap horizon, 0 to 20 percent in the Bt horizon, and 0 to 30 percent in the C horizon (if it occurs)

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 3 or 4
Texture—silt loam

Bt horizon:
Color—hue of 2.5Y, 10YR, or 7.5YR, value of 4 to 6, and chroma of 2 to 8
Texture—silty clay loam or silty clay in the fine-earth fraction

C horizon (if it occurs):
Color—hue of 2.5Y or 10YR, value of 5 or 6, and chroma of 2 to 6
Texture—silty clay loam or silty clay in the fine-earth fraction

Lewisburg Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Slow
Parent material: Till
Landform: Wisconsinan till plains
Position on the landform: Slight rises
Slope range: 0 to 6 percent
Adjacent soils: Celina, Crosby, Kokomo, and Miamian

Taxonomic classification: Fine, mixed, active, mesic Aquic Hapludalfs

Typical Pedon

Lewisburg silt loam, 2 to 6 percent slopes, about 3.8 miles north-northeast of New Holland, in Perry Township, in Pickaway County, Ohio; about 150 feet northwest of the intersection of State Route 207, Crownover Mill, and Waterloo-New Holland-Egypt Roads, along State Route 207, then 150 feet north:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine and medium granular structure; friable; many fine roots; 1 percent rock fragments; slightly acid; abrupt smooth boundary.

Bt1—7 to 11 inches; yellowish brown (10YR 5/4) clay loam; strong fine and medium subangular blocky and angular blocky structure; firm; many fine roots; few faint brown (7.5YR 4/4) clay films on faces of peds; common medium prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; 3 percent rock fragments; slightly acid; clear wavy boundary.

Bt2—11 to 16 inches; yellowish brown (10YR 5/4) clay; moderate medium prismatic structure parting to strong fine and medium subangular and angular blocky; firm; few fine roots; many prominent brown (7.5YR 4/2) clay films on faces of peds; common medium prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; 5 percent rock fragments; neutral; clear wavy boundary.

BC—16 to 18 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular structure; firm; few fine roots; few faint dark brown (7.5YR 4/2) clay films on faces of peds; few fine prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; light gray (10YR 7/1) weathered limestone fragments; 8 percent rock fragments; slightly effervescent; slightly alkaline; clear irregular boundary.

Cd1—18 to 24 inches; yellowish brown (10YR 5/4) loam; massive; firm; few fine roots; common medium prominent light brownish gray (10YR 6/2) iron depletions; few fine prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; 10 percent rock fragments; strongly effervescent; moderately alkaline; diffuse smooth boundary.

Cd2—24 to 36 inches; yellowish brown (10YR 5/4) loam; massive; firm; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; few medium faint yellowish brown (10YR 5/6) iron oxide accumulations in the matrix; 10 percent rock fragments; strongly effervescent; moderately alkaline; diffuse smooth boundary.

Cd3—36 to 80 inches; yellowish brown (10YR 5/4) loam; massive; firm; 10 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 12 to 20 inches
Depth to carbonates: 12 to 16 inches
Content of rock fragments: 0 to 10 percent in the A horizon, 2 to 12 percent in the Bt horizon, and 5 to 15 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 2 or 3
Texture—silt loam

Bt and BC horizons:
Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6
Texture—clay loam, clay, or silty clay loam

C horizon:
Color—hue of 10YR or 2.5Y, value of 5, and chroma of 3 or 4
Texture—loam or silt loam

Libre Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the solum and moderately slow in the lower part
Parent material: Loess and the underlying Illinoian outwash
Landform: Illinoian outwash terraces
Position on the landform: Treads and risers
Slope range: 0 to 12 percent
Adjacent soils: Pike, Rainsboro, Negley, and Taggart

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Libre silt loam, 2 to 6 percent slopes, about 0.3 mile southeast of Londonderry, in Liberty Township, in Ross County, Ohio; about 1,860 feet south and 2,940 feet east of the northwest corner of sec. 14, T. 8 N., R. 20 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; friable; common fine roots; very strongly acid; abrupt smooth boundary.

Bt1—10 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—15 to 29 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation on faces of peds; very strongly acid; gradual smooth boundary.

Bt3—29 to 33 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few fine black (10YR 2/1) masses of iron and manganese oxide accumulation on faces of peds; very strongly acid; clear smooth boundary.

2Btd1—33 to 39 inches; dark yellowish brown (10YR 4/6) loam; weak medium platy structure parting to weak medium subangular blocky; firm; few distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; very strongly acid; clear smooth boundary.

2Btd2—39 to 53 inches; yellowish brown (10YR 5/4) and brown (10YR 5/3) loam; weak medium platy structure parting to weak medium subangular blocky; firm; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent gravel; very strongly acid; clear smooth boundary.

2Bt1—53 to 71 inches; strong brown (7.5YR 5/6) loam; weak coarse subangular blocky structure; friable; many distinct strong brown (7.5YR 4/6) clay films on faces of peds; many medium prominent black (10YR 2/1) masses of iron and manganese oxide accumulation on faces of peds; 2 percent gravel; very strongly acid; clear smooth boundary.

2Bt2—71 to 80 inches; strong brown (7.5YR 5/6) loam; weak medium subangular blocky structure; friable; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; 2 percent gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: 48 to more than 80 inches
Thickness of the loess mantle: 20 to 40 inches
Content of rock fragments: 0 to 20 percent in the 2Bt horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

2Btd horizon:
Color—hue of 10YR, 7.5YR, or 5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam, loam, silty clay loam, or silt loam

2Bt horizon:
Color—hue of 10YR, 7.5YR, or 5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam, gravelly clay loam, loam, or sandy clay loam

Markland Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Thin loess over lacustrine silty clay and clay

Landform: Lake plains and lacustrine terraces
Position on the landform: Treads and risers
Slope range: 2 to 35 percent
Adjacent soils: Alexandria, McGary, and Shelocta

Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon for Ross County

Markland silt loam, 2 to 6 percent slopes, 60 feet north of the intersection of U.S. Highway 50 and County Road 167:

Ap—0 to 11 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

Bt1—11 to 14 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; few fine distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium distinct brown (10YR 4/3) organic coatings on faces of peds; neutral; clear wavy boundary.

2Bt2—14 to 26 inches; yellowish brown (10YR 5/6) silty clay; moderate medium angular blocky structure; firm; few fine roots; common medium distinct yellowish brown (10YR 5/4 and 5/6) clay films on faces of peds; common prominent black (N 2.5/0) masses of iron and manganese oxide accumulation on faces of peds; slightly acid; clear wavy boundary.

2Bt3—26 to 33 inches; yellowish brown (10YR 5/6) silty clay; moderate medium angular blocky structure parting to moderate medium subangular blocky; firm; few fine roots; common medium distinct brown (10YR 5/3) and common medium distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common distinct prominent black (N 2.5/0) masses of iron and manganese oxide accumulation in the matrix; neutral; clear wavy boundary.

2Bt4—33 to 37 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm; few fine roots; common medium distinct yellowish brown (10YR 5/4 and 5/6) clay films on faces of peds; common fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; common fine prominent black (N 2.5/0) masses of iron and manganese oxide accumulation in the matrix; neutral; clear wavy boundary.

2BC—37 to 67 inches; yellowish brown (10YR 5/4) silty clay; moderate coarse prismatic structure parting to weak coarse subangular blocky; firm; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; common fine distinct black (N 2.5/0) masses of iron and manganese oxide accumulation in the matrix; common distinct grayish brown (10YR 5/2) calcium carbonate accumulations; strongly effervescent; moderately alkaline; clear wavy boundary.

2C—67 to 80 inches; yellowish brown (10YR 5/4) silty clay; massive; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; common fine prominent black (N 2.5/0) masses of iron and manganese oxide accumulation in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 30 to 70 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam or silty clay loam

Bt horizon (if it occurs):
Color—hue of 2.5Y, 10YR, or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silty clay loam

2Bt horizon:
Color—hue of 2.5Y, 10YR, or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—clay or silty clay

C horizon:
Color—hue of 2.5Y or 10YR, value of 4 or 5, and chroma of 2 to 6
Texture—clay, silty clay, or silty clay loam with thin strata of silt loam

Martinsville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Loamy outwash
Landform: Stream terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Fox, Gessie, Mentor, and Ockley

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Figure 18.—Typical profile of Clifty silt loam, occasionally flooded. This soil has a gravelly and very gravelly subsoil and substratum.

Figure 19.—Typical profile of Eldean loam, 0 to 2 percent slopes.

Figure 20.—Typical profile of Glenford silt loam, 2 to 6 percent slopes.

Figure 21.—Typical profile of Haubstadt silt loam, 2 to 6 percent slopes. The fragipan begins at a depth of 2.5 feet and is well defined by vertical gray streaks. Depth is marked in feet.

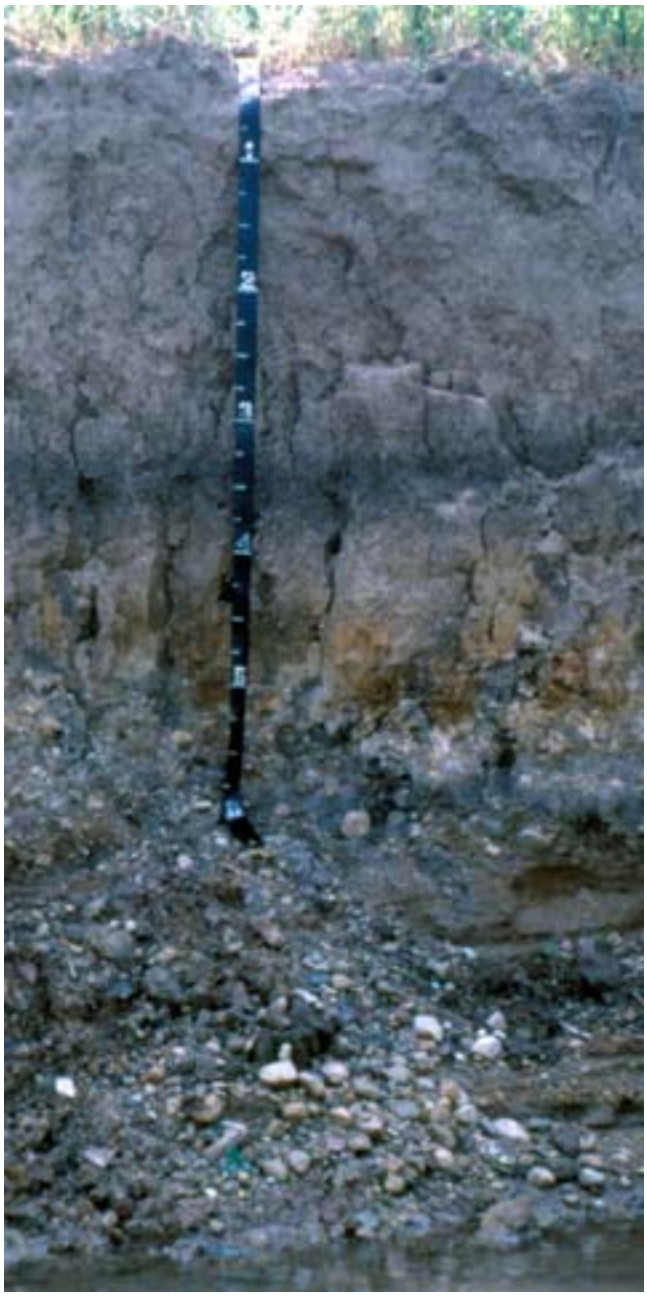


Figure 22.—Typical profile of Kinn silt loam, occasionally flooded. Note the buried A horizon at a depth of about 40 inches. Depth is marked in feet.

Figure 23.—A profile of Miamian silt loam.

Figure 24.—Typical profile of Nineveh silt loam, 0 to 2 percent slopes, in an old gravel pit. Note the tonguing of material from the B horizon into the outwash.

Figure 25.—A profile of Rainsboro silt loam. Depth is marked in feet.

Typical Pedon for Ross County

Martinsville loam, rarely flooded, about 3.2 miles southwest of Richmond Dale, in Franklin Township; about 3,150 feet southwest of the intersection of County Road 205 and Township Road 203, along County Road 205, then 4,600 feet east:

Ap—0 to 11 inches; dark yellowish brown (10YR 3/4) loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; many fine and medium roots; 10 percent material from the Bt horizon; slightly acid; abrupt smooth boundary.

Bt1—11 to 26 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common medium distinct brown (7.5YR 4/4) and few medium prominent brown (10YR 4/3) clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

Bt2—26 to 34 inches; yellowish brown (10YR 5/4) sandy clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common medium distinct yellowish brown (10YR 5/4) clay films on faces of peds; moderately acid; clear wavy boundary.

Bt3—34 to 45 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct yellowish brown (10YR 5/6) clay films on faces of peds; moderately acid; clear wavy boundary.

BC—45 to 55 inches; brown (7.5YR 4/4) fine sandy loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct brown (7.5YR 4/4) clay films on faces of peds; slightly acid; clear wavy boundary.

C—55 to 80 inches; yellowish brown (10YR 5/4), stratified fine sandy loam and silt loam; massive; friable; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to carbonates: 40 to 60 inches
Content of rock fragments: 0 to 10 percent throughout

Ap horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 3 or 4
Texture—loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—sandy clay loam or clay loam in the upper part and sandy clay loam or loam in the lower part

BC horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—sandy loam, loam, or silt loam

C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 6
Texture—stratified sandy loam, loam, silt loam, fine sand, very fine sand, loamy sand, loamy fine sand, or sand

McGary Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Very slow
Parent material: Thin loess and lacustrine deposits
Landform: Lacustrine terraces and lake plains
Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Cidermill, Cruze, Omulga, and Wyatt

Taxonomic classification: Fine, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon for Ross County

McGary silt loam, 0 to 2 percent slopes, about 2.5 miles east-southeast of Richmond Dale, in Jefferson Township; about 1,200 feet south and 2,100 feet west of the northeast corner of sec. 11, T. 7 N., R. 20 W.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

Btg—6 to 13 inches; light brownish gray (10YR 6/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common fine distinct light brownish gray (10YR 6/2) clay films on faces of peds; many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; very strongly acid; clear smooth boundary.

Bt1—13 to 22 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; firm; few medium roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; few fine

prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation in the matrix; very strongly acid; clear smooth boundary.

Bt2—22 to 36 inches; dark yellowish brown (10YR 4/4) silty clay; moderate medium angular blocky structure; firm; many distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; strongly acid in the upper part grading to neutral in the lower part; clear wavy boundary.

BC—36 to 42 inches; yellowish brown (10YR 5/4), stratified silty clay loam and silty clay; weak coarse prismatic structure parting to moderate medium platy; firm; many fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly effervescent; slightly alkaline; clear smooth boundary.

Cgk—42 to 80 inches; grayish brown (10YR 5/2), stratified clay and silty clay loam; massive; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; many calcium carbonate concretions; slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 36 to 42 inches
Depth to carbonates: 22 to 55 inches

Ap horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 to 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 6
Texture—silty clay loam or silty clay

C or Cgk horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 6
Texture—stratified clay, silty clay loam, or silty clay

Mentor Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Silty lacustrine material over outwash
Landform: Stream terraces
Position on the landform: Treads and risers
Slope range: 0 to 20 percent
Adjacent soils: Cidermill, Eldean, Fox, Gessie, Martinsville, Negley, Princeton, and Sloan

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Hapludalfs

Typical Pedon for Ross County

Mentor silt loam, gravelly substratum, 0 to 2 percent slopes, about 4.9 miles southeast of Chillicothe, in Liberty Township; about 2,490 feet east and 2,000 feet south of the northwest corner of sec. 7, T. 7 N., R. 21 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure parting to moderate fine granular; friable; common fine roots; moderately acid; abrupt smooth boundary.

Bt1—10 to 18 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few distinct yellowish brown (10YR 5/6) clay films on faces of peds; common medium distinct dark yellowish brown (10YR 4/4) clay depletions on faces of peds; strongly acid; gradual smooth boundary.

Bt2—18 to 33 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common prominent yellowish brown (10YR 5/4) clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt3—33 to 43 inches; yellowish brown (10YR 5/4) silt loam; weak coarse subangular blocky structure parting to moderate medium subangular blocky; firm; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; few medium distinct pale brown (10YR 6/3) clay depletions in the matrix; slightly acid; gradual smooth boundary.

BCt—43 to 53 inches; yellowish brown (10YR 5/6) silt loam; weak coarse subangular blocky structure; firm; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine distinct pale brown (10YR 6/3) clay depletions on faces of peds; slightly acid; clear smooth boundary.

C1—53 to 59 inches; yellowish brown (10YR 5/4) silt loam; massive; firm; slightly acid; clear smooth boundary.

C2—59 to 71 inches; brown (7.5YR 4/4) gravelly clay loam; massive; firm; 20 percent gravel; neutral; gradual smooth boundary.

C3—71 to 80 inches; brown (7.5YR 4/4) gravelly loam; massive; firm; 30 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 36 to 60 inches
Depth to carbonates: More than 50 inches
Content of gravel: 0 to 2 percent in the Ap and Bt horizons and 0 to 35 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—dominantly silt loam or silty clay loam with strata of loam, clay loam, or sandy loam and thin lenses of silty clay in the fine-earth fraction

Miamian Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Parent material: Till and a thin mantle of loess
Landform: Wisconsinan till plains
Position on the landform: Slight rises, backslopes, and shoulders
Slope range: 2 to 35 percent
Adjacent soils: Celina, Crosby, Kendallville, Kokomo, Lewisburg, and Thrifton

Taxonomic classification: Fine, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for Ross County

Miamian silt loam (fig. 23), 6 to 12 percent slopes, eroded, about 5.5 miles southwest of Clarksburg, in Concord Township; about 2,775 feet west of the intersection of State Highway 35 and County Road 84, along State Highway 35, then 2,045 feet north:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; 10 percent mixing of material from the Bt horizon; weak fine granular structure; friable; common fine roots; 5 percent rock fragments; slightly acid; abrupt smooth boundary.

Bt1—6 to 11 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; few medium and common fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 5 percent rock fragments; slightly acid; clear smooth boundary.

Bt2—11 to 18 inches; yellowish brown (10YR 5/6) silty clay; moderate medium prismatic structure parting to strong fine and medium subangular blocky; firm; common fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 5 percent rock fragments; moderately acid; clear wavy boundary.

Bt3—18 to 24 inches; yellowish brown (10YR 5/6) clay; moderate medium prismatic structure parting to strong medium subangular blocky; firm; few fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 5 percent rock fragments; moderately acid; clear wavy boundary.

Bt4—24 to 30 inches; yellowish brown (10YR 5/6) clay loam; moderate medium and coarse subangular blocky structure; firm; few fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 5 percent rock fragments; slightly effervescent in spots; slightly alkaline; clear wavy boundary.

Cd1—30 to 64 inches; yellowish brown (10YR 5/4) loam; massive; very firm; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 10 percent rock fragments; strongly effervescent; moderately alkaline; clear wavy boundary.

Cd2—64 to 80 inches; dark yellowish brown (10YR 4/4) loam; massive; very firm; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 10 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to dense till: 20 to 40 inches
Depth to bedrock: More than 60 inches
Depth to carbonates: 18 to 40 inches
Thickness of the loess mantle: 0 to 18 inches
Content of rock fragments: 0 to 5 percent in the A horizon, 2 to 15 percent in the Bt horizon, and 5 to 15 percent in the Cd horizon

Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam, clay, silty clay, or silty clay loam

Cd horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—loam or silt loam

Milton Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Parent material: Till and a thin mantle of loess and the underlying residuum
Landform: Wisconsinan till plains
Position on the landform: Summits, backslopes, and shoulders
Slope range: 2 to 35 percent
Adjacent soils: Fox, Kendallville, Libre, Miamian, Negley, Ockley, and Rainsboro

Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon for Ross County

Milton silt loam, 2 to 6 percent slopes, about 5.75 miles south of Greenfield, in Paint Township; about 1.5 miles west-southwest of the intersection of Rapid Forge and Taylor Road, along Taylor Road, then 200 feet south:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium granular structure; friable; many fine roots; 5 percent igneous pebbles; slightly acid; abrupt smooth boundary.
2Bt1—7 to 11 inches; yellowish brown (10YR 5/4) clay; strong medium subangular blocky structure; firm; many fine roots; common prominent yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) clay films on faces of peds; 10 percent igneous pebbles; neutral; clear wavy boundary.
2Bt2—11 to 17 inches; yellowish brown (10YR 5/4) clay; strong coarse subangular blocky structure; firm; few fine roots; many prominent dark yellowish brown (10YR 4/4) clay films on faces of peds; common distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 10 percent igneous pebbles; neutral; clear wavy boundary.
3Bt3—17 to 25 inches; yellowish brown (10YR 5/4) channery sandy clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 30 percent limestone fragments; strongly effervescent; moderately alkaline; abrupt wavy boundary.
3R—25 to 30 inches; limestone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Depth to carbonates: 10 to 30 inches
Content of rock fragments: 0 to 10 percent in the Ap horizon, 0 to 10 percent in the Bt horizon, and 2 to 50 percent in the 2Bt horizon

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—clay, silt loam, or silty clay loam

2Bt horizon:
Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6
Texture—clay, silty clay, or clay loam in the fine-earth fraction

3Bt horizon:
Color—hue of 5YR to 5Y, value of 4 or 5, and chroma of 2 to 4
Texture—clay, sandy clay loam, or clay loam in the fine-earth fraction

Negley Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Illinoian outwash deposits
Landform: Illinoian outwash terraces
Position on the landform: Backslopes, footslopes, and risers
Slope range: 6 to 35 percent
Adjacent soils: Libre, Pike, and Rainsboro

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Paleudalfs

Typical Pedon for Ross County

Negley loam, 20 to 35 percent slopes, eroded, about 3/4 mile south-southeast of Londonderry, in Liberty Township; about 1,300 feet west and 1,000 feet north of the southeast corner of sec. 14, T. 8 N., R. 20 W.

Ap—0 to 7 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; moderate medium and fine granular structure; friable; many fine and medium roots; 20 percent strong brown (7.5YR 5/8) material from the Bt horizon; 5 percent gravel; strongly acid; abrupt smooth boundary.

Bt1—7 to 18 inches; strong brown (7.5YR 5/8) clay loam; moderate fine subangular blocky structure; friable; common fine and medium roots; common medium distinct brown (7.5YR 5/4) clay films on faces of peds; common fine prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; 5 percent gravel; moderately acid; clear smooth boundary.

Bt2—18 to 38 inches; yellowish red (5YR 5/8) gravelly clay loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct strong brown (7.5YR 5/6) and common medium distinct yellowish red (5YR 5/8) clay films on faces of peds; few fine prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; 20 percent gravel; strongly acid; clear wavy boundary.

Bt3—38 to 61 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct strong brown (7.5YR 5/6) clay films on faces of peds; few fine prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; 5 percent gravel; strongly acid; clear wavy boundary.

Bt4—61 to 80 inches; strong brown (7.5YR 5/6) gravelly sandy clay loam; moderate medium subangular blocky structure; friable; few medium distinct strong brown (7.5YR 5/6) clay films on faces of peds; few fine prominent very dark brown (10YR 2/2) masses of iron and manganese oxide accumulation throughout; 15 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 80 to 100 inches
Content of gravel: 0 to 10 percent in the Ap horizon and 5 to 25 percent in the Bt horizon

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4
Texture—loam

Bt horizon:
Color—hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 3 to 8
Texture—loam, clay loam, or sandy clay loam in the fine-earth fraction

Nineveh Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and very rapid in the substratum
Parent material: Loamy sediments over outwash material
Landform: Wisconsinan outwash terraces
Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Casco, Eldean, Fox, Ockley, Rodman, and Warsaw

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Typic Argiudolls

Typical Pedon for Ross County

Nineveh silt loam, 0 to 2 percent slopes (fig. 24), about 2 miles west of Bainbridge, in Paint Township; about 3,150 feet west-southwest of the intersection of Cove Run Road and Falls Road, along Falls Road, then 240 feet east:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 4/3) dry; weak fine subangular blocky structure; friable; few fine roots; 5 percent gravel; neutral; clear smooth boundary.

AB—10 to 15 inches; very dark grayish brown (10YR 3/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; 5 percent gravel; neutral; clear wavy boundary.

Bt1—15 to 22 inches; brown (7.5YR 4/4) gravelly clay loam; moderate medium subangular blocky structure; firm; very few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; common prominent very dark grayish brown (10YR 3/2) organic coatings on faces of peds; 15 percent gravel; neutral; clear smooth boundary.

Bt2—22 to 33 inches; brown (7.5YR 4/4) gravelly clay loam; moderate medium subangular blocky structure; firm; very few fine roots; medium distinct brown (7.5YR 4/4) clay films on faces of peds; 20 percent gravel; slightly alkaline; abrupt wavy boundary.

2BCt—33 to 37 inches; brown (10YR 4/3) very gravelly loam; weak fine subangular blocky structure; friable; few fine distinct dark brown (10YR 3/3) clay films on faces of peds; 35 percent gravel; slightly effervescent; slightly alkaline; abrupt wavy boundary.

2C—37 to 80 inches; brown (10YR 5/3) and pale brown (10YR 6/3) extremely gravelly coarse sand;

single grain; loose; 60 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Thickness of the mollic epipedon: 10 to 15 inches
Depth to carbonates: 20 to 40 inches
Content of gravel: 0 to 10 percent in the Ap horizon, 10 to 15 percent in the upper part of the Bt horizon, 20 to 40 percent in the lower part of the Bt horizon, and 35 to 60 percent in the 2C horizon

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 3, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 3 or 4
Texture—clay loam, loam, or sandy clay loam in the fine-earth fraction

2C horizon:
Color—hue of 10YR, value of 5 to 7, and chroma of 3 or 4
Texture—sand and coarse sand in the fine-earth fraction; commonly stratified

Ockley Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and very rapid in the substratum
Parent material: Silty material less than 20 inches thick over loamy outwash over stratified sand and gravel
Landform: Wisconsinan outwash terraces
Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Fox, Eldean, Nineveh, and Warsaw

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for Ross County

Ockley loam, 2 to 6 percent slopes, about 6.85 miles southeast of Chillicothe, in Liberty Township; about 2,850 feet east and 1,000 feet south of the northwest corner of sec. 9, T. 7 N., R. 21 W.

Ap—0 to 10 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; common fine and medium roots; slightly acid; abrupt smooth boundary.

BE—10 to 14 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; many fine and medium roots; common medium faint brown (10YR 4/3) organic coatings on faces of peds; moderately acid; clear wavy boundary.

Bt1—14 to 19 inches; strong brown (7.5YR 5/6) loam; moderate medium subangular blocky structure; friable; few fine roots; common fine distinct strong brown (7.5YR 5/6) clay films on faces of peds; moderately acid; clear wavy boundary.

2Bt2—19 to 30 inches; strong brown (7.5YR 5/6) clay loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct strong brown (7.5YR 5/6) clay films on faces of peds; moderately acid; clear wavy boundary.

2Bt3—30 to 55 inches; brown (7.5YR 4/4) gravelly clay loam and gravelly sandy clay loam; moderate medium subangular blocky structure; firm; few fine roots; common medium distinct brown (7.5YR 4/4) clay films on faces of peds; 20 percent gravel; slightly acid; clear wavy boundary.

3C1—55 to 68 inches; yellowish brown (10YR 5/4), stratified gravelly sandy loam and loamy sand; massive; friable; 20 percent gravel; slightly effervescent around the gravel; moderately alkaline; clear irregular boundary.

3C2—68 to 80 inches; yellowish brown (10YR 5/4), stratified loamy sand and gravelly loamy sand; single grain; loose; 20 percent gravel; violently effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Depth to carbonates: 40 to 72 inches
Thickness of the loess mantle: Less than 20 inches
Content of gravel: 0 to 5 percent in the Ap horizon, 0 to 10 percent in the upper part of the Bt horizon, 10 to 35 percent in the lower part of the Bt horizon, and 20 to 65 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—loam, silt loam, or silty clay loam

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4, and chroma of 3 to 6
Texture—clay loam or sandy clay loam in the fine-earth fraction

3C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—stratified sandy loam and loamy sand in the fine-earth fraction of the upper part; stratified loamy sand to sand in the fine-earth fraction of the lower part

Omulga Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Parent material: Loess over colluvium, old alluvium, and the underlying lacustrine sediments
Landform: Valley fill in abandoned preglacial drainage systems; proglacial lakes (relict)
Position on the landform: Treads and risers
Slope range: 2 to 12 percent
Adjacent soils: Cruze, Tyler, and Wyatt

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon for Ross County

Omulga silt loam, 2 to 6 percent slopes, about 1 mile east of Nipgen, in Huntington Township; about 270 feet southeast of the intersection of Township Road 152A and Township Road 153, along Township Road 152A, then 300 feet east:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; friable; common fine roots; few rock fragments; slightly acid; abrupt smooth boundary.

BE—7 to 12 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; firm; common fine roots; common distinct brown (10YR 4/3) organic coatings on vertical faces of peds; 2 percent rock fragments; strongly acid; clear smooth boundary.

Bt1—12 to 19 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; few distinct strong brown (7.5YR 5/6) clay films on faces of peds; 2 percent rock fragments; very strongly acid; clear smooth boundary.

Bt2—19 to 23 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many faint yellowish brown (10YR 5/4) coatings on faces of peds; 2 percent rock fragments; very strongly acid; clear smooth boundary.

B/E—23 to 28 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many faint light yellowish brown (10YR 6/4) coatings on faces of peds (E part); 2 percent rock fragments; very strongly acid; clear smooth boundary.

2Btx1—28 to 34 inches; yellowish brown (10YR 5/6) silt loam; weak very coarse prismatic structure parting to weak medium platy; very firm; brittle; few fine roots concentrated between faces of prisms; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many medium prominent light brownish gray (10YR 6/2) clay depletions on vertical faces of prisms surrounded by many distinct yellowish brown (10YR 5/8) masses of iron accumulation; common fine prominent black (N 2.5/0) masses of iron and manganese oxide accumulation in the matrix; 10 percent rock fragments; very strongly acid; clear wavy boundary.

2Btx2—34 to 60 inches; yellowish brown (10YR 5/6) silty clay loam; weak very coarse prismatic structure parting to weak medium platy; very firm; brittle; common distinct yellowish brown (10YR 5/6) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many medium prominent light brownish gray (2.5Y 6/2) clay depletions on vertical prism faces surrounded by many distinct yellowish brown (10YR 5/8) masses of iron accumulation; few fine prominent black (N 2.5/0) iron and manganese oxide accumulations in the matrix; 10 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt—60 to 71 inches; yellowish brown (10YR 5/6) silty clay loam; weak very coarse prismatic structure parting to weak coarse subangular blocky; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many medium prominent grayish brown (10YR 5/2) clay depletions on

vertical faces of prisms; 10 percent rock fragments; very strongly acid; clear wavy boundary.

2BC—71 to 80 inches; yellowish brown (10YR 5/6) silty clay loam; weak coarse subangular blocky structure; firm; common fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; 10 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 80 inches
Depth to the fragipan: 18 to 36 inches
Content of rock fragments: 0 to 5 percent in the Ap and Bt horizons, 0 to 10 percent in the 2Btx horizon, and 0 to 15 percent in the 2Bt and 2C horizons (if they occur)

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 8
Texture—silt loam or silty clay loam

2Btx horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—silt loam or silty clay loam

2Bt and 2C horizons:
Color—hue of 7.5YR, 10YR, or 2.5Y, value of 4 or 5, and chroma of 2 to 4
Texture—silty clay loam, silt loam, silty clay, or clay

Orrville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Parent material: Loamy alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Clifty, Huntington, Haymond, and Sloan

Taxonomic classification: Fine-loamy, mixed, active, nonacid Fluventic Endoaquepts

Typical Pedon

Orrville silt loam, about 5 miles northeast of Waverly, in Jackson Township, in Pike County, Ohio; about 0.5 mile north of the intersection of Higby and Wilson Run Roads, then 30 feet east:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many fine and common medium roots; strongly acid; abrupt smooth boundary.

Bw—8 to 14 inches; pale brown (10YR 6/3) silt loam; weak medium subangular blocky structure; firm; common fine roots; few fine vesicular pores; many medium distinct light gray (10YR 7/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; strongly acid; clear wavy boundary.

Bg1—14 to 22 inches; light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; firm; few fine roots; few fine vesicular pores; many medium distinct light gray (10YR 7/2) iron depletions in the matrix; common medium prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; moderately acid; gradual wavy boundary.

Bg2—22 to 35 inches; light brownish gray (10YR 6/2) loam; weak medium subangular blocky structure; firm; few fine roots; few fine vesicular pores; many coarse distinct light gray (10YR 7/2) iron depletions in the matrix; common medium prominent brownish yellow (10YR 6/6) and yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; moderately acid; gradual wavy boundary.

C—35 to 49 inches; yellowish brown (10YR 5/4) clay loam; massive; firm; many coarse prominent light brownish gray (10YR 6/2) iron depletions in the matrix; many fine distinct yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; many fine prominent black (10YR 2/1) manganese concretions throughout; moderately acid; gradual wavy boundary.

Cg—49 to 66 inches; light brownish gray (10YR 6/2) sandy clay loam; massive; firm; many coarse distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; few fine and medium prominent yellowish brown (10YR 5/6 and 5/8) masses of iron accumulation in the matrix; moderately acid; gradual wavy boundary.

C´—66 to 80 inches; yellowish brown (10YR 5/6) gravelly sandy clay loam; massive; friable; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; few fine distinct brownish yellow (10YR 6/8) masses of iron oxide accumulation in the matrix; few medium prominent

red (2.5YR 4/6) masses of iron oxide accumulation in the matrix; 20 percent gravel; moderately acid.

Range in Characteristics

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 2
Texture—silt loam

Bw and Bg horizons:
Color—hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 to 6
Texture—silt loam, loam, clay loam, or silty clay loam

C horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 6
Texture—silt loam, loam, clay loam, sandy clay loam, or gravelly sandy clay loam

Otwell Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Very slow
Parent material: 20 to 40 inches of loess over stratified lacustrine or outwash material or old mixed alluvium derived from weathered bedrock
Landform: Proglacial lake (relict) fill
Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Haubstadt, Negley, and Taggart

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Otwell silt loam, 3 to 8 percent slopes, about 1.25 miles north-northeast of Cynthiana, in Perry Township, in Pike County, Ohio; about 6,000 feet southwest of the intersection of State Route 41 and Lapperal Road, along State Route 41, then about 1,300 feet south:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak coarse granular structure; friable; many fine roots; 2 percent rock fragments; abrupt smooth boundary.

BA—7 to 11 inches; 70 percent yellowish brown (10YR 5/6) and 30 percent brown (10YR 4/3) silt loam; moderate fine and medium subangular blocky structure; friable; common fine roots; common fine vesicular pores; 2 percent rock fragments; strongly acid; clear smooth boundary.

Bt1—11 to 16 inches; yellowish brown (10YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; firm; common fine roots; common fine vesicular pores; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) organic coatings on faces of peds; 2 percent rock fragments; strongly acid; clear smooth boundary.

Bt2—16 to 27 inches; yellowish brown (10YR 5/6) silt loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine vesicular pores; few distinct yellowish brown (10YR 5/4) and brown (7.5YR 5/4) clay films on faces of peds; few fine and medium prominent very dark grayish brown (10YR 3/2) iron depletions in the matrix; common prominent pale brown (10YR 6/3) clay depletions on faces of peds; 2 percent rock fragments; strongly acid; clear smooth boundary.

2Btx1—27 to 34 inches; yellowish brown (10YR 5/6) silt loam; weak coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; few fine roots in vertical cracks; common distinct grayish brown (10YR 5/2) and yellowish brown (10YR 5/4) and very faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine prominent light grayish brown (10YR 6/2) iron depletions in the matrix; common fine prominent light gray (10YR 7/2) clay depletions on faces of peds; few fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine prominent very dark grayish brown (10YR 3/2) masses of iron and manganese oxide accumulation in the matrix; 2 percent rock fragments; strongly acid; clear smooth boundary.

2Btx2—34 to 50 inches; yellowish brown (10YR 5/4) silty clay loam; strong very coarse prismatic structure parting to moderate thick platy and moderate fine and medium angular blocky; very firm; brittle; common prominent dark yellowish brown (10YR 4/4) and brown (10YR 5/3) and common distinct yellowish brown (10YR 5/4) clay films on faces of peds; common distinct pale brown (10YR 6/3) and many prominent light brownish gray (10YR 6/2) clay depletions on faces of peds; few fine distinct strong brown (7.5YR 5/6) and common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine very prominent dark grayish brown (10YR 3/2) masses of iron and manganese accumulation in the matrix; 2 percent rock fragments; strongly acid; clear smooth boundary.

2BC—50 to 80 inches; strong brown (7.5YR 5/6) clay loam; weak coarse prismatic structure parting to

weak medium subangular blocky; firm; slightly brittle; few fine distinct grayish brown (10YR 5/2) and dark yellowish brown (10YR 4/4) and very few distinct yellowish brown (10YR 5/4) and gray (10YR 5/1) clay films on faces of peds; very few fine and medium prominent light brownish gray (10YR 6/2) and light gray (10YR 7/1) and common fine prominent light gray (N 7/0) clay depletions on faces of peds; few fine faint brown (7.5YR 5/4) and few fine faint yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common coarse prominent very dark grayish brown (10YR 3/2) masses of iron and manganese oxide accumulation in the matrix; 2 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 45 to 80 inches
Depth to bedrock: 60 to more than 80 inches
Depth to the fragipan: 24 to 36 inches
Content of rock fragments: 0 to 5 percent in the A horizon and 0 to 5 percent in the B horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt and 2Btx horizons:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—silt loam or silty clay loam

2BC horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam

Patton Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate
Parent material: Silty glaciolacustrine sediments
Landform: Glacial lake plains and stream terraces
Position on the landform: Depressions and flats
Slope range: 0 to 2 percent
Adjacent soils: Eldean, Henshaw, Kendallville, Miamian, and Westland

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon for Ross County

Patton silty clay loam, sandy substratum, about 3.5 miles west of Adelphi, in Colerain Township; 534 feet south and 2,400 feet east of the northwest corner of sec. 4, T. 10 N., R. 20 W.

Ap—0 to 10 inches; black (10YR 2/1) silty clay loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; firm; many fine roots; neutral; abrupt smooth boundary.

Bg1—10 to 15 inches; very dark gray (10YR 3/1) silty clay loam; moderate medium angular blocky structure; firm; common fine prominent olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; common fine roots; neutral; clear wavy boundary.

Bg2—15 to 29 inches; dark gray (10YR 4/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many medium prominent dark gray (10YR 4/1) clay depletions on vertical faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; clear wavy boundary.

Bg3—29 to 47 inches; gray (10YR 5/1) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; many medium prominent dark gray (10YR 4/1) and gray (10YR 5/1) clay depletions on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; neutral; clear wavy boundary.

Cg1—47 to 59 inches; gray (10YR 5/1), stratified silty clay loam and silt loam; massive; firm; common fine prominent olive brown (2.5YR 4/4) masses of iron accumulation in the matrix; slightly effervescent; moderately alkaline; clear wavy boundary.

Cg2—59 to 70 inches; gray (10YR 5/1) silty clay loam; massive; firm; many medium prominent olive (5Y 4/3) and common medium prominent olive brown (2.5Y 4/4) masses of iron accumulation in the matrix; strongly effervescent; moderately alkaline; clear wavy boundary.

Cg3—70 to 80 inches; dark gray (10YR 4/1), stratified fine sandy loam and loamy sand; massive; firm; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 30 to 48 inches
Thickness of the mollic epipedon: 10 to 20 inches
Depth to carbonates: 40 to 60 inches
Content of gravel: 0 to 5 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 or 2
Texture—silty clay loam

Bg horizon:
Color—hue of 10YR, 5Y, 2.5Y, or N, value of 3 to 5 in the upper part and 4 or 5 in the lower part, and chroma of 0 to 2
Texture—silty clay loam

Cg horizon:
Color—hue of 10YR, 5Y, 2.5Y, or N, value of 4 or 5, and chroma of 0 to 2
Texture—stratified silty clay loam, silt loam, fine sandy loam, or loamy sand

Peoga Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Parent material: Alluvial or colluvial silty sediments of mixed origin derived from Illinoian drift
Landform: Illinoian outwash terraces
Position on the landform: Depressions and flats
Slope range: 0 to 2 percent
Adjacent soils: Libre, Pike, Rainsboro, and Taggart

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fragic Epiaqualfs

Typical Pedon for Ross County

Peoga silt loam, about 3.4 miles southwest of Richmond Dale, in Franklin Township; about 1,180 feet northwest of the intersection of County Road 205 and Township Road 203, along Township Road 203, then 260 feet north:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine roots; common fine prominent dark brown (10YR 3/3) masses of iron and manganese oxide accumulation in the matrix; many medium prominent dark grayish brown (10YR 4/2) organic coatings on faces of peds; 2 percent rock fragments; moderately acid; abrupt smooth boundary.

BEg—9 to 18 inches; light brownish gray (2.5Y 6/2) silt loam; weak fine subangular blocky structure; friable; common fine roots; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few medium faint grayish brown (2.5Y 5/2) clay depletions on faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; common fine prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation throughout; 2 percent rock fragments; strongly acid; clear wavy boundary.

Btg—18 to 43 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to moderate medium angular blocky; firm; common fine roots; common medium faint light brownish gray (10YR 6/2) clay films on faces of peds; common medium faint light brownish gray (10YR 6/2) clay depletions on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine prominent black (N 2.5/0) masses of iron and manganese oxide accumulation throughout; 2 percent rock fragments; strongly acid; clear wavy boundary.

Btx—43 to 65 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; dominantly firm; some brittleness; few fine roots; common medium faint yellowish brown (10YR 5/4) clay films on faces of peds; many medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; many medium prominent black (N 2.5/1) masses of iron and manganese oxide accumulation throughout; 5 percent rock fragments; strongly acid; clear smooth boundary.

C—65 to 80 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; common medium distinct strong brown (7.5YR 5/8) and yellowish brown (10YR 5/4) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; few medium prominent black (10YR 2/1) manganese concretions throughout; 10 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to more than 80 inches
Thickness of the loess mantle: More than 40 inches
Content of rock fragments: 0 to 5 percent in the Ap, Btg, and Btx horizons and 0 to 10 percent in the C horizon

Ap horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2
Texture—silt loam

BEg horizon:
Color—hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2
Texture—silt loam or silty clay loam

Btg and Btx or Bt horizons:
Color—hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 to 6
Texture—silty clay loam or silt loam

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—stratified clay loam, loam, or sandy loam

Pike Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: 40 to 60 inches of loess over Illinoian outwash
Landform: Illinoian outwash terraces
Position on the landform: Treads
Slope range: 0 to 6 percent
Adjacent soils: Libre, Negley, Rainsboro, and Taggart

Taxonomic classification: Fine-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon for Ross County

Pike silt loam, 0 to 2 percent slopes, about 4.7 miles northwest of Londonderry, in Liberty Township; about 360 feet south and 3,000 feet east of the northwest corner of sec. 1, T. 7 N., R. 21 W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate fine granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.

BE—8 to 11 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; many fine roots; common faint yellowish brown (10YR 5/4) coatings on faces of peds; moderately acid; clear smooth boundary.

Bt1—11 to 23 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; few distinct strong brown (7.5YR 5/6) clay films on faces of peds; few distinct yellowish brown (10YR 5/4) coatings on faces of peds; strongly acid; clear smooth boundary.

Bt2—23 to 37 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; few distinct yellowish brown (10YR 5/4) coatings on faces of peds; strongly acid; clear smooth boundary.

Bt3—37 to 46 inches; strong brown (7.5YR 5/6) silt loam; moderate coarse subangular blocky structure; friable; few fine roots; common distinct brown (7.5YR 4/4) clay films on faces of peds; common distinct very pale brown (10YR 7/4) coatings on vertical faces of peds; strongly acid; clear smooth boundary.

2Bt4—46 to 61 inches; strong brown (7.5YR 4/6) loam; weak coarse and medium subangular blocky structure; firm; common distinct brown (7.5YR 4/4) clay films on faces of peds; common distinct light yellowish brown (10YR 6/4) coatings on vertical faces of peds; strongly acid; clear smooth boundary.

2Bt5—61 to 80 inches; strong brown (7.5YR 5/6) gravelly clay loam; moderate medium subangular blocky structure; firm; common distinct brown (7.5YR 4/4) clay films on faces of peds; 20 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 60 to more than 80 inches
Thickness of the loess mantle: More than 40 inches
Content of rock fragments: 0 to 2 percent in the Ap and Bt horizons and 0 to 20 percent in the 2Bt horizon

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 4, and chroma of 3 or 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silty clay loam or silt loam

2Bt horizon:
Color—hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—loam, clay loam, silt loam, or silty clay loam in the fine-earth fraction

Pope Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid
Parent material: Alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Sloan, Spargus, and Tioga

Taxonomic classification: Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts

Typical Pedon

Pope silt loam, frequently flooded, about 1 mile east-northeast of Middleton, in Milton Township, in Jackson County, Ohio; about 1,900 feet north and 1,725 feet west of the southeast corner of sec. 15, T. 9 N., R. 17 W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak coarse granular structure; friable; common fine roots; moderately acid; gradual wavy boundary.

Bw1—9 to 16 inches; brown (10YR 4/3) silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; moderately acid; gradual wavy boundary.

Bw2—16 to 32 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine and medium subangular blocky structure; friable; common fine roots; strongly acid; gradual wavy boundary.

BC—32 to 40 inches; light yellowish brown (10YR 6/4) loam; weak coarse subangular blocky structure; friable; few fine roots; few fine faint pale brown (10YR 6/3) masses of iron accumulation in the matrix; 2 percent rock fragments; strongly acid; gradual wavy boundary.

C1—40 to 55 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; friable; strongly acid; gradual wavy boundary.

C2—55 to 60 inches; yellowish brown (10YR 5/6) loamy sand; single grain; loose; few coarse distinct pale brown (10YR 6/3) masses of iron accumulation in the matrix; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 50 inches

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4
Texture—silt loam

B horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—silt loam or loam

C horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—loamy sand or sandy loam

Princeton Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and moderately rapid in the substratum
Parent material: Eolian silts and fine sands
Landform: Loess hills
Position on the landform: Summits and shoulders
Slope range: 2 to 20 percent
Adjacent soils: Omulga and Wyatt

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for Ross County

Princeton sandy loam, 2 to 6 percent slopes, about 1 mile northwest of Richmond Dale, in Jefferson Township; about 200 feet north and 2,300 feet west of the southeast corner of sec. 33, T. 8 N., R. 20 W.

Ap—0 to 10 inches; dark yellowish brown (10YR 4/4) sandy loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; common fine and medium roots; moderately acid; abrupt smooth boundary.

BE—10 to 19 inches; strong brown (7.5YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; common medium distinct dark yellowish brown (10YR 4/4) organic coatings on faces of peds; moderately acid; clear wavy boundary.

Bt1—19 to 30 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable; common fine roots; common medium distinct brown (7.5YR 5/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—30 to 48 inches; brown (7.5YR 5/4) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; common medium distinct brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt3—48 to 67 inches; brown (7.5YR 4/4) sandy clay loam; weak medium subangular blocky structure; friable; common medium distinct brown (7.5YR 4/4) clay films on faces of peds; moderately acid; clear wavy boundary.

Bt4—67 to 80 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common medium distinct brown (7.5YR 4/4) clay films on faces of peds; moderately acid.

Range in Characteristics

Thickness of the solum: 45 to 85 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—sandy loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—sandy clay loam, sandy loam, or fine sandy loam

C horizon (if it occurs):
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—stratified fine sand, loamy fine sand, and fine sandy loam

Rainsboro Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the loess, moderately slow in the fragipan, and moderate in the substratum
Parent material: Loess over weathered Illinoian outwash deposits
Landform: Illinoian outwash terraces
Position on the landform: Treads and risers
Slope range: 0 to 12 percent
Adjacent soils: Libre, Negley, Pike, and Taggart

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Fragiudalfs

Typical Pedon for the Series

Rainsboro silt loam (fig. 25), 0 to 2 percent slopes, about 0.3 mile southeast of Londonderry, in Liberty Township, in Ross County, Ohio; about 2,610 feet west and 770 feet south of the northeast corner of sec. 14, T. 8 N., R. 20 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine granular structure parting to moderate thin platy; friable; common medium roots; strongly acid; abrupt smooth boundary.

BE—10 to 16 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; friable; few fine roots; few medium prominent strong brown (7.5YR 4/6) masses of iron accumulation on faces of peds; common distinct dark yellowish brown (10YR 4/4) organic coatings on faces of peds; moderately acid; clear smooth boundary.

Bt1—16 to 23 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; slightly acid; gradual smooth boundary.

Bt2—23 to 29 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine faint yellowish brown (10YR 5/4) clay depletions on faces of peds; few fine prominent black (10YR 2/1) masses of iron and manganese oxide accumulation in the matrix; strongly acid; clear smooth boundary.

Bt3—29 to 36 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; many distinct brown (10YR 5/3) clay depletions on faces of peds; few medium prominent black (10YR 2/1) iron and manganese concretions throughout; very strongly acid; abrupt smooth boundary.

2Btx1—36 to 41 inches; dark yellowish brown (10YR 4/4) loam; weak very coarse prismatic structure parting to weak medium subangular blocky; firm; brittle; few very fine roots along faces of prisms; common distinct yellowish brown (10YR 5/4) clay films on faces of peds and common prominent gray (10YR 5/1) clay films on faces of prisms; few medium distinct grayish brown (10YR 5/2) iron depletions on faces of prisms; common medium prominent strong brown (7.5YR 4/6) masses of iron and manganese oxide accumulation in rinds along depletions; few medium prominent black (10YR 2/1) masses of manganese oxide accumulation on faces of peds; 2 percent gravel; very strongly acid; clear smooth boundary.

2Btx2—41 to 50 inches; dark yellowish brown (10YR 4/4) loam; moderate very coarse prismatic structure; very firm; brittle; few distinct dark yellowish brown (10YR 4/6) and common prominent gray (10YR 5/1) clay films on faces of prisms; few medium prominent grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) iron depletions on faces of prisms; common medium prominent strong brown (7.5YR 5/8) masses of iron and manganese oxide accumulation in rinds along depletions; common medium prominent black (10YR 2/1) masses of manganese oxide accumulation on faces of peds;

2 percent gravel; very strongly acid; gradual smooth boundary.

2Btx3—50 to 59 inches; yellowish brown (10YR 5/4) fine sandy loam; weak very coarse prismatic structure parting to weak thin platy; very firm; brittle; few faint yellowish brown (10YR 5/6) clay films on horizontal faces of peds and few prominent gray (10YR 5/1) clay films on faces of prisms; few medium prominent grayish brown (10YR 5/2) iron depletions on faces of prisms; few medium prominent strong brown (7.5YR 5/8) masses of iron and manganese oxide accumulation in rinds along depletions; common medium prominent black (10YR 2/1) masses of manganese oxide accumulation on faces of peds; few fine prominent black (10YR 2/1) manganese concretions throughout; 2 percent gravel; very strongly acid; clear smooth boundary.

2Btx4—59 to 65 inches; yellowish brown (10YR 5/6) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; brittle; common faint yellowish brown (10YR 5/6) clay films on faces of peds and few prominent gray (10YR 5/1) clay films on faces of prisms; few medium prominent grayish brown (10YR 5/2) iron depletions on faces of prisms; few medium prominent strong brown (7.5YR 5/8) masses of iron and manganese oxide accumulation in rinds along depletions; common medium prominent (10YR 2/1) masses of manganese oxide accumulation on faces of peds; few fine black (10YR 2/1) manganese concretions throughout; 2 percent gravel; very strongly acid; clear smooth boundary.

2Bt1—65 to 77 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure parting to weak thick platy; firm; common distinct strong brown (7.5YR 4/6) clay films on faces of peds; few medium prominent grayish brown (10YR 5/2) iron depletions on faces of prisms; few medium prominent strong brown (7.5YR 5/8) masses of iron and manganese oxide accumulation in rinds along depletions; common medium prominent black (10YR 2/1) masses of manganese oxide accumulation on faces of peds; few fine prominent black (10YR 2/1) manganese concretions throughout; 2 percent gravel; very strongly acid; clear smooth boundary.

2Bt2—77 to 80 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure parting to weak thick platy; friable; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few medium prominent strong brown (7.5YR 5/8) masses of iron and manganese oxide accumulation throughout; few medium prominent black (10YR 2/1) manganese concretions throughout; 5 percent gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: 60 to more than 100 inches
Thickness of the loess mantle: 18 to 40 inches
Depth to the fragipan: 12 to 41 inches
Content of rock fragments: 0 to 2 percent in the Ap, BE, and Bt horizons and 1 to 20 percent in the 2Btx and 2Bt horizons

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

BE horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 to 6
Texture—silt loam or silty clay loam

2Btx and 2Bt horizons:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 8
Texture—loam, sandy loam, fine sandy loam, silt loam, silty clay loam, sandy clay loam, or clay loam

Rigley Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Colluvium derived from sandstone and siltstone
Landform: Hills
Position on the landform: Backslopes
Slope range: 40 to 70 percent
Adjacent soils: Shelocta and Brownsville

Taxonomic classification: Coarse-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon

Rigley sandy loam, 15 to 25 percent slopes, about 3.1 miles southeast of Middleton, in Milton Township, in Jackson County, Ohio; about 2,375 feet south and 2,625 feet west of the northeast corner of sec. 25, T. 9 N., R. 17 W.

A—0 to 3 inches; dark brown (10YR 3/3) sandy loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many fine and common medium roots; 3 percent rock fragments; very strongly acid; abrupt wavy boundary.

E—3 to 7 inches; brown (10YR 5/3) sandy loam; moderate medium and coarse granular structure; friable; common fine and medium roots; few faint brown (10YR 4/3) organic coatings on vertical faces of peds; few fine faint pale brown (10YR 6/3) clay depletions on vertical faces of peds; 4 percent rock fragments; very strongly acid; clear wavy boundary.

Bt1—7 to 13 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; very few distinct strong brown (7.5YR 5/6) clay films on vertical faces of peds; very few fine faint light yellowish brown (10YR 6/4) clay depletions on vertical faces of peds; 3 percent rock fragments; very strongly acid; clear wavy boundary.

Bt2—13 to 18 inches; strong brown (7.5YR 5/6) sandy loam; moderate fine and medium subangular blocky structure; firm; few fine and medium roots; few distinct yellowish red (5YR 4/6) clay films on horizontal faces of peds; 3 percent rock fragments; very strongly acid; clear wavy boundary.

Bt3—18 to 27 inches; strong brown (7.5YR 5/6) sandy loam; moderate medium subangular blocky structure; firm; few fine and medium roots; few distinct yellowish red (5YR 4/6) clay films on faces of peds; 5 percent rock fragments; very strongly acid; gradual wavy boundary.

Bt4—27 to 37 inches; strong brown (7.5YR 5/6) channery sandy loam; moderate medium and coarse subangular blocky structure; firm; few fine roots; few distinct reddish brown (5YR 4/4) clay films on faces of peds; 15 percent rock fragments; very strongly acid; gradual wavy boundary.

BC—37 to 44 inches; strong brown (7.5YR 5/6) channery sandy loam; weak medium and coarse subangular blocky structure; friable; few fine roots; few distinct reddish brown (5YR 4/3) clay films bridging sand grains; 25 percent rock fragments; very strongly acid; clear wavy boundary.

C—44 to 60 inches; yellowish brown (10YR 5/6) extremely channery sandy loam; massive; friable; 70 percent weakly cemented rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: 60 to more than 100 inches
Content of rock fragments: 0 to 15 percent in the A horizon, 0 to 25 percent in the Bt horizon, and 25 to 70 percent in the C horizon

A horizon:
Color—hue of 10YR, value of 3 to 6, and chroma of 2 or 3
Texture—loam or sandy loam

E horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 4
Texture—loam or sandy loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 6
Texture—loam or sandy loam in the fine-earth fraction

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam or loamy sand in the fine-earth fraction

Rodman Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Moderately rapid in the upper part and very rapid in the lower part
Parent material: Calcareous, stratified gravelly coarse sand and sand
Landform: Outwash terraces
Position on the landform: Risers
Slope range: 12 to 35 percent
Adjacent soils: Casco, Eldean, and Fox

Taxonomic classification: Sandy-skeletal, mixed, mesic Typic Hapludolls

Typical Pedon for Ross County

Rodman gravelly loam, 20 to 35 percent slopes, eroded, about 6 miles southeast of Chillicothe, in Liberty Township; 1,420 feet east and 900 feet south of the northwest corner of sec. 14, T. 7 N., R. 21 W.

Ap—0 to 2 inches; dark brown (7.5YR 3/2) gravelly loam, brown (10YR 4/3) dry; moderate fine and medium granular structure; very friable; many fine roots; 15 percent gravel; neutral; clear wavy boundary.

BA—2 to 7 inches; very dark grayish brown (10YR 3/2) gravelly loam; weak fine subangular blocky structure; very friable; many fine roots; many

coarse prominent dark brown (7.5YR 3/2) organic coatings on faces of peds; 30 percent gravel; slightly effervescent; moderately alkaline; gradual wavy boundary.

Bw—7 to 11 inches; dark yellowish brown (10YR 4/4) gravelly sandy loam; weak fine subangular blocky structure; very friable; many fine roots; few prominent dark brown (10YR 3/3) clay films on faces of peds; 30 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

BC—11 to 15 inches; dark yellowish brown (10YR 4/4) very gravelly loamy sand; weak medium subangular blocky structure; very friable; many fine roots; few faint brown (7.5YR 4/4) clay accumulations bridging sand grains; 50 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

C—15 to 80 inches; brown (10YR 5/3) extremely gravelly loamy sand; single grain; loose; 60 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 10 to 15 inches
Thickness of the mollic epipedon: 7 to 12 inches
Depth to carbonates: 0 to 15 inches
Content of gravel: 10 to 25 percent in the Ap horizon, 10 to 30 percent in the Bw horizon, and 35 to 70 percent in the C horizon

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2
Texture—loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 or 4
Texture—loam or sandy loam in the fine-earth fraction

C horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 4
Texture—sand or loamy sand in the fine-earth fraction

Ross Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and moderately rapid in the substratum
Parent material: Loamy alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Gessie, Rossburg, Sloan, and Stonelick

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon for the Series

Ross silt loam, occasionally flooded, about 1.6 miles northeast of Bainbridge, in Paxton Township, in Ross County, Ohio; about 1,950 feet north of the intersection of U.S. Highway 50 and Township Road 30, along Township Road 30, then 120 feet west; USGS Morgantown topographic quadrangle; lat. 39 degrees 14 minutes 13 seconds N. and long. 83 degrees 14 minutes 42 seconds W., NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine and medium granular structure; friable; many fine roots; 2 percent gravel; slightly alkaline; clear smooth boundary.

A1—8 to 20 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; friable; common fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; 2 percent gravel; slightly alkaline; clear smooth boundary.

A2—20 to 29 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium subangular blocky structure; friable; common fine roots; 2 percent gravel; slightly alkaline; clear wavy boundary.

Bw—29 to 40 inches; brown (10YR 4/3) loam; weak coarse subangular blocky structure; friable; few fine roots; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; 10 percent gravel; moderately alkaline; clear smooth boundary.

C—40 to 80 inches; dark yellowish brown (10YR 4/4) sandy loam with strata of coarse sandy loam; massive; very friable; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 24 to 45 inches
Thickness of the mollic epipedon: 24 to 40 inches
Depth to carbonates: 24 to 45 inches
Content of gravel: 0 to 5 percent in the Ap horizon, 0 to 10 percent in the Bw horizon, and 0 to 45 percent in the C horizon

Ap and A horizons:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture—silt loam

Bw horizon:
Color—hue of 10YR, value of 2 to 5, and chroma of 1 to 4
Texture—commonly loam or silt loam, but subhorizons of silty clay loam, sandy loam, and clay loam are in some pedons

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 to 4
Texture—loam, sandy loam, sandy clay loam, or silt loam; loamy sand included in the fine-earth fraction below a depth of 40 inches

Rossburg Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and moderately rapid in the substratum
Parent material: Loamy alluvium
Landform: Low terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Gessie, Huntington, Ross, and Stonelick

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for Ross County

Rossburg silt loam, rarely flooded, about 11 miles north of Chillicothe, in Union Township; about 4,488 feet east of the intersection of State Route 104 and Kellenberger Road, then 2,904 feet north of Kellenberger Road:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure parting to moderate fine and medium granular; friable; few fine roots; slightly acid; clear smooth boundary.
A—10 to 17 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure parting to moderate fine granular; friable; few fine roots; slightly acid; clear smooth boundary.
AB—17 to 20 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure; friable; few fine roots; 2 percent gravel; slightly acid; clear wavy boundary.
Bw—20 to 37 inches; brown (7.5YR 4/4) loam; weak medium and coarse subangular blocky structure; friable; few fine roots; few distinct dark brown (10YR 3/3) organic coatings on vertical faces of peds; 5 percent gravel; slightly acid; clear wavy boundary.
BC—37 to 47 inches; brown (7.5YR 4/4) gravelly loam; massive; friable; few fine roots; 30 percent gravel; slightly acid; abrupt smooth boundary.
C1—47 to 72 inches; brown (10YR 5/3) sandy loam; massive; very friable; neutral; clear smooth boundary.
C2—72 to 80 inches; brown (10YR 5/3) gravelly sandy loam; massive; very friable; 20 percent gravel; slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 24 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches
Content of gravel: 0 to 5 percent in the Ap horizon, 0 to 10 percent in the B horizon, and 0 to 35 percent in the BC and C horizons (averaging less than 20 percent)

Ap and A horizons:
Color—hue of 10YR, value of 2 or 3, and chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 6
Texture—silt loam or loam; sandy loam included in the lower part

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—sandy loam, loam, or silt loam in the fine-earth fraction

Rossmoyne Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and moderately slow in the fragipan
Parent material: Loess and the underlying Illinoian till
Landform: Illinoian till plains
Position on the landform: Summits and shoulders
Slope range: 0 to 12 percent
Adjacent soils: Avonburg and Cana

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Fragiudalfs

Typical Pedon for Ross County

Rossmoyne silt loam, 2 to 6 percent slopes, about 2.4 miles north-northeast of Bourneville, in Twin Township; about 260 feet southeast of the intersection of Township Road 105 and Township Road 108, along Township Road 108, then 850 feet east:

Ap—0 to 11 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; weak fine granular structure; friable; common fine roots; 2 percent rock fragments; common fine prominent black (N 2.5/0) manganese concretions throughout; strongly acid; abrupt smooth boundary.

BE—11 to 16 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; firm; common fine roots; many medium faint yellowish brown (10YR 5/4) clay depletions on faces of peds; 2 percent rock fragments; few fine prominent black (N 2.5/0) manganese concretions throughout; very strongly acid; clear smooth boundary.

Bt1—16 to 22 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; common fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/8) masses of iron accumulation; 2 percent rock fragments; few fine prominent black (N 2.5/0) manganese concretions throughout; very strongly acid; clear smooth boundary.

Bt2—22 to 26 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine prominent grayish brown (10YR 5/2) iron depletions on faces of peds; common fine distinct strong brown (7.5YR 5/8) masses of iron accumulation on faces of peds; 2 percent rock fragments; very strongly acid; clear smooth boundary.

2Bt3—26 to 29 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions on faces of peds; 5 percent rock fragments; very strongly acid; clear smooth boundary.

2Btx1—29 to 36 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; very firm; brittle; few fine roots concentrated between prism faces; few distinct gray (10YR 5/1) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions on faces of prisms; many medium prominent light brownish gray (10YR 6/2) clay depletions on vertical faces of prisms; 5 percent rock fragments; very strongly acid; clear smooth boundary.

2Btx2—36 to 50 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; very firm; brittle; few fine roots concentrated between prisms; few distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine prominent grayish brown (10YR 5/2) iron depletions on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) clay depletions on vertical faces of prisms; 10 percent rock fragments; very strongly acid; clear smooth boundary.

2Btx3—50 to 65 inches; yellowish brown (10YR 5/6) silt loam; weak coarse prismatic structure parting to weak coarse subangular blocky; very firm; brittle; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) clay depletions on vertical faces of prisms; 10 percent rock fragments; very strongly acid; clear smooth boundary.

2B´t—65 to 80 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; few fine roots; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions on faces of peds; 10 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 60 to more than 80 inches
Depth to carbonates: 60 to more than 80 inches
Depth to the fragipan: 18 to 30 inches
Thickness of the loess mantle: 18 to 40 inches
Content of rock fragments: 0 to 2 percent in the Ap and Bt horizons and 2 to 15 percent in the 2Btx and 2Bt horizons

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

2Btx horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam, silt loam, silty clay loam, or loam

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam or loam

Shelocta Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Colluvium derived from shale, siltstone, and sandstone
Landform: Hills
Position on the landform: Footslopes and backslopes
Slope range: 12 to 70 percent
Adjacent soils: Brownsville, Cruze, Rigley, Weikert, and Wharton

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludults

Typical Pedon for Ross County

Shelocta silt loam, in an area of Shelocta-Brownsville association, very steep, about 3.2 miles east of Tuscon, in Harrison Township; about 1,320 feet north and 3,420 feet east of the southwest corner of sec. 12, T. 10 N., R. 20 W.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; weak fine granular structure; very friable; common fine and medium roots; 10 percent rock fragments; slightly acid; abrupt wavy boundary.

E—3 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; common fine and few medium roots; few very dark grayish brown (10YR 3/2) krotovinas; 10 percent rock fragments; strongly acid; clear wavy boundary.

Bt1—10 to 20 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few fine and medium roots; few distinct strong brown (7.5YR 5/6) clay films on faces of peds; 10 percent rock fragments; very strongly acid; clear wavy boundary.

Bt2—20 to 33 inches; strong brown (7.5YR 5/6) channery silt loam; moderate medium subangular blocky structure; friable; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; 15 percent rock fragments; very strongly acid; clear wavy boundary.

Bt3—33 to 44 inches; yellowish brown (10YR 5/6) very channery silt loam; weak medium subangular blocky structure; firm; few fine and medium roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; 45 percent rock fragments; very strongly acid; clear wavy boundary.

BCt—44 to 55 inches; yellowish brown (10YR 5/6) very channery silt loam; weak medium subangular blocky structure; firm; few distinct strong brown (7.5YR 5/6) clay films on vertical faces of peds; 45 percent rock fragments; very strongly acid; clear wavy boundary.

C1—55 to 72 inches; yellowish brown (10YR 5/6) extremely channery silt loam; massive; firm; 60 percent rock fragments; very strongly acid; clear wavy boundary.

C2—72 to 80 inches; yellowish brown (10YR 5/6) channery silt loam; massive; firm; 15 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: More than 40 inches
Content of rock fragments: 2 to 35 percent in the A and E horizons, 5 to 50 percent in the Bt horizon, and 15 to 70 percent in the C horizon

A horizon:
Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3
Texture—silt loam in the fine-earth fraction

E horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4
Texture—silt loam or loam in the fine-earth fraction

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—silty clay loam or silt loam in the fine-earth fraction

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 6

Texture—silty clay loam or silt loam in the fine-earth fraction

Skidmore Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Clifty, Euclid, Gessie, Haymond, and Spargus

Taxonomic classification: Loamy-skeletal, mixed, semiactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon for Ross County

Skidmore cobbly silt loam, occasionally flooded, about 2 miles north-northwest of Nipgen, in Twin Township; about 870 feet west of the intersection of Township Road 152B and Township Road 909, along Township Road 152B, then 2,760 feet south:

Ap—0 to 10 inches; dark brown (10YR 3/3) cobbly silt loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; many fine and medium roots; 15 percent rock fragments; slightly acid; abrupt smooth boundary.

Bw1—10 to 15 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak fine and medium subangular blocky structure; friable; few fine roots; 20 percent gravel; slightly acid; abrupt smooth boundary.

Bw2—15 to 25 inches; yellowish brown (10YR 5/6) gravelly loam; weak medium subangular blocky structure; friable; few fine roots; 30 percent gravel; moderately acid; clear wavy boundary.

C—25 to 80 inches; yellowish brown (10YR 5/4) extremely gravelly clay loam; massive; friable; few fine roots; 70 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Content of rock fragments or gravel: 10 to 35 percent in the Ap horizon, 20 to 50 percent in the Bw horizon, and 35 to 75 percent in the BC and C horizons

Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4
Texture—silt loam in the fine-earth fraction

Bw and C horizons:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6
Texture—loam, clay loam, fine sandy loam, or sandy loam in the fine-earth fraction

Sloan Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderate
Parent material: Alluvium
Landform: Slight depressions on flood plains
Slope range: 0 to 2 percent
Adjacent soils: Gessie, Haymond, Huntington, and Stonelick

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon for Ross County

Sloan silty clay loam, occasionally flooded, about 1$^1/_2$ miles south-southeast of Yellowbud, in Union Township; about 2,772 feet east of the intersection of State Route 104 and Kellenberger Road, along Kellenberger Road, then 660 feet north:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silty clay loam, brown (10YR 4/3) dry; weak medium subangular blocky structure; friable; many fine roots; neutral; abrupt smooth boundary.

A—10 to 16 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation on faces of peds; neutral; clear wavy boundary.

Bg1—16 to 21 inches; dark gray (10YR 4/1) clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common fine prominent yellowish brown (10YR 5/6) masses of iron accumulation on faces of peds; many prominent very dark gray (10YR 3/1) organic coatings on faces of peds; 2 percent gravel; neutral; clear wavy boundary.

Bg2—21 to 32 inches; dark grayish brown (10YR 4/2) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common medium faint dark gray (10YR 4/1) iron depletions on faces of peds; few faint dark grayish brown (10YR 4/2) clay depletions on faces of peds; common coarse prominent yellowish brown (10YR

5/8) masses of iron accumulation on faces of peds; 2 percent gravel; neutral; gradual smooth boundary.

BCg—32 to 53 inches; dark grayish brown (10YR 4/2) sandy clay loam; weak coarse subangular blocky structure; firm; many fine faint gray (10YR 5/1) iron depletions on faces of peds; common medium prominent yellowish brown (10YR 5/8) masses of iron accumulation on faces of peds; 5 percent gravel; neutral; clear wavy boundary.

Cg—53 to 80 inches: dark grayish brown (10YR 4/2) gravelly sandy loam; massive; firm; few medium prominent yellowish brown (10YR 5/8) masses of iron accumulation throughout; 15 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 20 to 55 inches
Depth to carbonates: 22 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches
Content of gravel: 0 to 5 percent in the Ap, A, and B horizons and 0 to 20 percent in the Cg horizon

Ap and A horizons:
Color—hue of 10YR, 2.5Y, or N, value of 2 to 3, and chroma of 0 to 2
Texture—silty clay loam

Bg horizon:
Color—hue of 10YR, 2.5Y, 5Y, or N, value of 4 or 5, and chroma of 0 to 2
Texture—clay loam, silt loam, silty clay loam, or loam

Cg horizon:
Color—hue of 10YR, 2.5Y, or 5Y, value of 4 or 5, and chroma of 1 or 2
Texture—sandy loam, clay loam, silt loam, or silty clay loam in the fine-earth fraction

Spargus Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Mixture of water-worked colluvium derived from shale, siltstone, and sandstone and old alluvium
Landform: Alluvial fans
Slope range: 2 to 6 percent
Adjacent soils: Clifty, Pope, and Skidmore

Taxonomic classification: Fine-loamy, mixed, active, mesic Fluventic Dystrudepts

Typical Pedon for the Series

Spargus channery silt loam, 2 to 6 percent slopes, about 4 miles east of Bainbridge, in Twin Township, in Ross County, Ohio; about 5,220 feet southwest of the intersection of County Road 149 and Township Road 39B, along Township Road 39B, then 150 feet east:

Ap—0 to 10 inches; dark brown (10YR 3/3) channery silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many fine roots; 17 percent rock fragments; slightly acid; abrupt smooth boundary.

Bt1—10 to 16 inches; dark yellowish brown (10YR 4/4) channery silty clay loam; weak medium subangular blocky structure; friable; many fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common distinct dark brown (10YR 3/3) organic coatings on faces of peds; 30 percent rock fragments; moderately acid; clear wavy boundary.

Bt2—16 to 25 inches; dark yellowish brown (10YR 4/4) channery silt loam; moderate fine angular blocky structure; friable; few fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 20 percent rock fragments; strongly acid; clear wavy boundary.

Bt3—25 to 34 inches; brown (7.5YR 4/4) channery silty clay loam; weak coarse subangular blocky structure; firm; few fine roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; 20 percent rock fragments; very strongly acid; clear wavy boundary.

BC—34 to 45 inches; yellowish brown (10YR 5/6) channery silt loam; weak coarse angular blocky structure; firm; 20 percent rock fragments; very strongly acid; clear wavy boundary.

C—45 to 80 inches; yellowish brown (10YR 5/6) extremely channery silt loam; massive; firm; few fine distinct light brownish gray (2.5Y 6/2) iron depletions throughout; 65 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 20 to more than 40 inches
Depth to bedrock: More than 80 inches
Content of rock fragments: 10 to 35 percent in the A horizon, 20 to 50 percent in the Bt horizon, and 20 to 70 percent in the C horizon

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4
Texture—silt loam in the fine-earth fraction

Bt or Bw horizon (if it occurs):
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—silty clay loam or silt loam in the fine-earth fraction

BC horizon (if it occurs):
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam in the fine-earth fraction

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 6
Texture—silt loam, silty clay loam, clay loam, or loam in the fine-earth fraction

Stonelick Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Gessie, Huntington, Ross, and Sloan

Taxonomic classification: Coarse-loamy, mixed, superactive, calcareous, mesic Typic Udifluvents

Typical Pedon for Ross County

Stonelick loam, occasionally flooded, about 2.3 miles east-northeast of Bainbridge, in Paxton Township; about 5,430 feet northeast of the intersection of U.S. Highway 50 and Township Road 30, along U.S. Highway 50, then 1,950 feet south:

Ap—0 to 8 inches; brown (10YR 4/3) loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; common fine roots; strongly effervescent; moderately alkaline; abrupt smooth boundary.
C1—8 to 57 inches; brown (10YR 4/3) loam stratified with sandy loam and loamy sand; massive; friable; few fine roots; strongly effervescent; moderately alkaline; clear smooth boundary.
C2—57 to 80 inches; brown (10YR 4/3) silt loam stratified with sandy loam, loamy sand, and loam; massive; very friable; strongly effervescent; moderately alkaline.

Range in Characteristics

Content of gravel: 0 to 15 percent throughout

Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4
Texture—loam or fine sandy loam

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4
Texture—stratified loam, sandy loam, silt loam, fine sandy loam, sand, or loamy sand

Taggart Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate in the upper part of the solum and slow in the lower part
Parent material: Loess over Illinoian outwash
Landform: Illinoian outwash terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Libre, Peoga, Pike, and Rainsboro

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon for Ross County

Taggart silt loam, 0 to 2 percent slopes, about 1.1 miles west-southwest of Londonderry, in Liberty Township; about 2,100 feet east and 2,400 feet north of the southwest corner of sec. 15, T. 7 N., R. 20 W.

Ap—0 to 11 inches; grayish brown (10YR 5/2) silt loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; common fine and medium roots; common fine prominent black (N 2.5/0) manganese concretions throughout; moderately acid; abrupt smooth boundary.
E—11 to 16 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; few fine roots; common medium distinct light brownish gray (10YR 6/2) iron depletions on faces of peds; common medium faint grayish brown (10YR 5/2) clay depletions on vertical faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation on faces of peds; common fine prominent black (10YR 2/1) manganese concretions throughout; very strongly acid; clear wavy boundary.
Btg—16 to 33 inches; gray (10YR 5/1) silty clay loam; moderate medium angular blocky structure; friable; few fine roots; common distinct gray (10YR 5/1) clay films on faces of peds; common medium

prominent strong brown (7.5YR 5/8) masses of iron accumulation on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron accumulation on faces of peds; few fine prominent black (N 2.5/0) iron and manganese concretions throughout; strongly acid; clear wavy boundary.

Bt1—33 to 42 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; many prominent gray (10YR 5/1) clay films on faces of peds; common medium prominent gray (10YR 5/1) iron depletions on faces of peds; common fine prominent black (N 2.5/0) manganese concretions throughout; strongly acid; clear wavy boundary.

2Bt2—42 to 64 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; common distinct brown (10YR 5/3) and yellowish brown (10YR 5/4) and many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions on faces of peds; common fine yellowish brown (10YR 5/6) masses of iron accumulation on faces of peds; few fine prominent black (N 2.5/0) manganese concretions throughout; 5 percent gravel; strongly acid; clear wavy boundary.

2Bt3—64 to 76 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; common distinct brown (10YR 5/3) and many distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent gray (10YR 5/1) and grayish brown (10YR 5/2) iron depletions on faces of peds; few fine prominent black (N 2.5/0) manganese concretions throughout; 5 percent gravel; strongly acid; clear wavy boundary.

2Btg—76 to 80 inches; gray (10YR 5/1) clay loam; moderate medium subangular blocky structure; firm; common distinct gray (10YR 5/1) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation on faces of peds; few fine prominent black (N 2.5/0) manganese concretions throughout; 5 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 60 to more than 80 inches
Thickness of the loess mantle: 36 to 50 inches
Content of gravel: 2 to 10 percent in the 2Bt horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2
Texture—silt loam

Bt horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 1 to 6
Texture—silt loam or silty clay loam

2Bt horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6
Texture—clay loam, loam, or silt loam

Tarhollow Series

Depth class: Deep and very deep
Drainage class: Moderately well drained
Permeability: Moderate in the loess and slow in the residuum
Parent material: Loess over residuum
Landform: Hills
Position on the landform: Summits
Slope range: 6 to 15 percent slopes
Adjacent soils: Berks, Gilpin, and Tilsit

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Tarhollow silt loam, in an area of Berks-Tarhollow complex, 6 to 15 percent slopes, about 7 miles south of Adelphi, in Harrison Township, in Ross County, Ohio; about 930 feet south and 1,740 feet east of the northwest corner of sec. 12, T. 10 N., R. 20 W.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; common medium and many fine roots; very strongly acid; clear smooth boundary.

A2—2 to 5 inches; brown (10YR 4/3) silt loam; moderate fine and medium granular structure; many fine and few medium roots; common distinct very dark grayish brown (10YR 3/2) coatings on faces of peds; very strongly acid; clear smooth boundary.

BE—5 to 9 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; friable; few medium and common fine roots; few faint strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt1—9 to 12 inches; strong brown (7.5YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; few medium and common fine roots; few distinct strong brown (7.5YR 5/6) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—12 to 27 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; few medium and common fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt3—27 to 31 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; few fine distinct light yellowish brown (10YR 6/4) clay depletions on faces of peds; 1 percent rock fragments; very strongly acid; clear smooth boundary.

2Bt4—31 to 34 inches; strong brown (7.5YR 5/6) channery silty clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many medium prominent yellowish red (5YR 5/6) masses of iron accumulation in the matrix; 20 percent rock fragments; very strongly acid; clear wavy boundary.

2Bt5—34 to 44 inches; strong brown (7.5YR 5/6) channery silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct strong brown (7.5YR 5/6) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common distinct pale brown (10YR 6/3) clay depletions on faces of peds; 20 percent rock fragments; very strongly acid; clear wavy boundary.

2BC—44 to 55 inches; yellowish brown (10YR 5/6) silty clay loam; moderate coarse subangular blocky structure; firm; common medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; 1 percent rock fragments; strongly acid; clear smooth boundary.

2Cr—55 to 60 inches; soft siltstone.

Range in Characteristics

Thickness of the solum: 40 to 72 inches
Depth to bedrock: 40 to 80 inches
Thickness of the loess mantle: 24 to 40 inches
Content of rock fragments: 0 to 5 percent in the A and Bt horizons, 0 to 20 percent in the 2Bt and 2BC horizons, and 0 to 30 percent in the 2C horizon

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam

BE horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silty clay loam, silty clay, or clay in the fine-earth fraction

2BC and 2C horizons:
Color—hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 to 6
Texture—silty clay loam or silty clay in the fine-earth fraction

Thrifton Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately slow in the solum and slow in the underlying till
Parent material: Wisconsinan till
Landform: Till plains
Position on the landform: Backslopes and shoulders
Slope range: 6 to 35 percent
Adjacent soils: Celina, Crosby, Kokomo, and Miamian

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Thrifton clay loam, 12 to 20 percent slopes, severely eroded, about 4 miles northwest of Frankfort, in Concord Township, in Ross County, Ohio; about 1,915 feet northwest of the intersection of State Highway 138 and County Road 95, along County Road 95, then 860 feet north; Frankfort USGS topographic quadrangle; lat. 39 degrees 27 minutes 58 seconds N. and long. 83 degrees 13 minutes 0 seconds W., NAD 27:

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) clay loam, light yellowish brown (10YR 6/4) dry; weak fine subangular blocky structure; firm; common fine roots; 10 percent pebbles; strongly effervescent; moderately alkaline; clear smooth boundary.

BCt—8 to 14 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure;

firm; few fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 10 percent pebbles; strongly effervescent; moderately alkaline; clear wavy boundary.

Cd—14 to 80 inches; yellowish brown (10YR 5/4) loam; massive but ruptures to weak medium platy structure; firm; 12 percent pebbles; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Occurrence of carbonates: Throughout the profile
Content of rock fragments: 2 to 20 percent throughout

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4
Texture—clay loam in the fine-earth fraction

BCt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—clay loam or loam in the fine-earth fraction

Cd horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 5
Texture—loam or silt loam in the fine-earth fraction

Tilsit Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Moderate above the fragipan and slow in the fragipan
Parent material: Loess over residuum derived from siltstone, sandstone, and shale
Landform: Hills
Position on the landform: Summits and shoulders
Slope range: 0 to 12 percent
Adjacent soils: Coolville, Gilpin, and Tarhollow

Taxonomic classification: Fine-silty, mixed, semiactive, mesic Typic Fragiudults

Typical Pedon for Ross County

Tilsit silt loam, 0 to 2 percent slopes, about 0.6 mile north-northeast of Nipgen, in Twin Township; about 1,110 feet northwest from the intersection of Township Road 151 and State Highway 772, along State Highway 772, then 1,080 feet north:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, light yellowish brown (10YR 6/4) dry; moderate fine granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.

BE—9 to 12 inches; light yellowish brown (10YR 6/4) silt loam; weak medium subangular blocky structure; friable; common fine roots; many faint yellowish brown (10YR 5/4) clay depletions on faces of peds; many fine prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few fine prominent black (N 2.5/0) manganese concretions throughout; strongly acid; clear smooth boundary.

Bt—12 to 20 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few fine roots; few distinct yellowish brown (10YR 5/4) and brown (7.5YR 4/4) clay films on faces of peds; few fine prominent black (N 2.5/0) manganese concretions throughout; strongly acid; clear smooth boundary.

2B/E—20 to 23 inches; yellowish brown (10YR 5/6) silt loam (Bt); moderate medium subangular blocky structure; friable; few fine roots; few distinct yellowish brown (10YR 5/4) clay films on faces of peds; many distinct pale brown (10YR 6/3) clay depletions along faces of peds (E); few fine prominent black (N 2.5/0) manganese concretions throughout; 2 percent rock fragments; very strongly acid; clear smooth boundary.

2Btx1—23 to 34 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; very firm; brittle; few fine roots concentrated between prisms; many distinct grayish brown (10YR 5/2) clay films on vertical faces of prisms; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions on faces of peds; 2 percent rock fragments; very strongly acid; clear smooth boundary.

2Btx2—34 to 43 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; very firm; brittle; few fine roots concentrated between faces of prisms; many distinct grayish brown (10YR 5/2) clay films on faces of peds and few distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine prominent black (N 2.5/0) masses of iron and manganese oxide accumulation in the matrix; 2 percent rock fragments; very strongly acid; clear smooth boundary.

2Bt—43 to 50 inches; yellowish brown (10YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; firm; few distinct grayish brown

(10YR 5/2) and yellowish brown (10YR 5/4) clay films on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) clay depletions on vertical faces of prisms; 5 percent rock fragments; strongly acid; abrupt smooth boundary.

2R—50 to 55 inches; fine grained sandstone bedrock.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: 40 to 80 inches
Depth to the fragipan: 18 to 28 inches
Thickness of the loess mantle: 0 to 24 inches
Content of rock fragments: 0 to 2 percent in the Ap and Bt horizons, 0 to 10 percent in the 2Btx horizon, and 0 to 15 percent in the 2Bt and 2C horizons

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

2Btx and 2Bt horizons:
Color—hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam

C horizon (if it occurs):
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6
Texture—silt loam or silty clay loam

Tioga Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid in the solum and rapid in the substratum
Parent material: Loamy alluvium
Landform: Flood plains
Slope range: 0 to 2 percent
Adjacent soils: Gessie and Haymond

Taxonomic classification: Coarse-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts

Typical Pedon for Ross County

Tioga fine sandy loam, frequently flooded, about 1 mile northeast of Londonderry, in Liberty Township, about 350 feet north and 200 feet west of the southeast corner of sec. 1, T. 8 N., R. 20 W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) fine sandy loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; few fine roots; 1 percent rock fragments; neutral; abrupt smooth boundary.

Bw1—8 to 13 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak coarse subangular blocky structure parting to weak fine subangular blocky; very friable; few fine roots; few distinct brown (10YR 4/3) organic coatings on faces of peds; slightly acid; clear smooth boundary.

Bw2—13 to 25 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak coarse subangular blocky structure parting to weak fine subangular blocky; very friable; very few fine roots; few distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; moderately acid; clear smooth boundary.

Bw3—25 to 32 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure parting to weak fine subangular blocky; friable; very few fine roots; common distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; moderately acid; abrupt smooth boundary.

C1—32 to 41 inches; yellowish brown (10YR 5/4) loam; massive; very friable; 10 percent gravel; moderately acid; clear smooth boundary.

C2—41 to 48 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; very friable; moderately acid; abrupt smooth boundary.

C3—48 to 80 inches; yellowish brown (10YR 5/4) very gravelly loamy sand; massive; very friable; 45 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 18 to 40 inches
Content of rock fragments: 0 to 35 percent above a depth of 40 inches and 0 to 60 percent below this depth

Ap horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—fine sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—fine sandy loam, loam, or silt loam with thin strata of loamy sand or sandy loam

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—loamy sand to silt loam in the fine-earth fraction

Tyler Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderately slow above the fragipan, slow or very slow in the fragipan, and moderately slow in the substratum
Parent material: Loess overlying silty colluvium or old alluvium
Landform: Preglacial valley fill
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Clifty, Omulga, and Wyatt

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Fragiaquults

Typical Pedon for the Series

Tyler silt loam, 0 to 2 percent slopes, about 5.5 miles south-southwest of Massieville, in Huntington Township, in Ross County, Ohio; about 2,100 feet northwest of the intersection of County Road 167 and Township Road 181, along County Road 167, then 270 feet west:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; few medium and common fine roots; few fine distinct black (10YR 2/1) manganese concretions throughout; strongly acid; abrupt smooth boundary.

E—9 to 14 inches; light yellowish brown (2.5Y 6/4) silt loam; weak medium platy structure; friable; few medium and fine roots; common fine prominent light brownish gray (2.5Y 6/2) iron depletions on faces of peds; common fine prominent brownish yellow (10YR 6/6) masses of iron accumulation on faces of peds; many fine prominent black (10YR 2/1) manganese concretions throughout; very strongly acid; clear wavy boundary.

Btg—14 to 18 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium subangular blocky structure; firm; few fine roots; common faint grayish brown (2.5Y 5/2) clay films in pores and on faces of peds; many medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation on faces of peds; many fine prominent black (10YR 2/1) manganese concretions throughout; very strongly acid; clear wavy boundary.

Btx1—18 to 23 inches; yellowish brown (10YR 5/4) silty clay loam; moderate very coarse prismatic structure parting to weak coarse subangular blocky; very firm; brittle; few fine roots on faces of prisms; common distinct light brownish gray (10YR 6/2) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many medium prominent light gray (10YR 7/2) clay depletions on faces of prisms; many fine prominent black (10YR 2/1) manganese concretions throughout; very strongly acid; clear wavy boundary.

Btx2—23 to 34 inches; yellowish brown (10YR 5/6) silty clay loam; moderate very coarse prismatic structure parting to weak very thick platy; very firm; brittle; few fine roots on faces of prisms; many distinct gray (10YR 6/1) clay films on faces of prisms; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many fine prominent black (10YR 2/1) manganese concretions throughout; very strongly acid; gradual wavy boundary.

2Btx3—34 to 46 inches; light yellowish brown (10YR 6/4) silty clay loam; weak very coarse prismatic structure; very firm and brittle; many distinct light brownish gray (10YR 6/2) clay films on faces of prisms; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many fine prominent black (10YR 2/1) manganese concretions throughout; 2 percent rounded fine and medium sandstone gravel; very strongly acid; gradual wavy boundary.

2Btx4—46 to 59 inches; light yellowish brown (2.5Y 6/4) silty clay loam; weak very coarse prismatic structure; very firm and brittle; many distinct light brownish gray (10YR 6/2) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; many fine prominent black (10YR 2/1) manganese concretions and accumulations on faces of peds; 12 percent rounded sandstone rock fragments; very strongly acid; gradual smooth boundary.

2C—59 to 70 inches; light yellowish brown (2.5Y 6/4) and grayish brown (10YR 5/2), stratified silty clay loam and silt loam; massive; firm; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 80 inches
Depth to the fragipan: 15 to 36 inches
Thickness of the loess mantle: 10 to 40 inches
Content of rock fragments: 0 to 2 percent in the A and Bt or Btg horizons, 0 to 10 percent in the Btx and

2Btx horizons, and 0 to 15 percent in the 2C horizon

Ap horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 to 3
Texture—silt loam

E horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4
Texture—silt loam

Bt or Bg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 6
Texture—silt loam or silty clay loam

Btx and 2Btx horizons:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam or silty clay loam; clay loam and silty clay loam included in the lower part

2C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 6
Texture—stratified silt loam, silty clay loam, or loam

Warsaw Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the solum and very rapid in the substratum
Parent material: Loamy material over outwash
Landform: Wisconsinan outwash terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Casco, Eldean, Fox, Ockley, and Rodman

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Argiudolls

Typical Pedon

Warsaw silt loam, 0 to 2 percent slopes, about 1.5 miles southeast of Eagle City, in Moorefield Township, in Clark County, Ohio; about 240 feet east and 2,190 feet south of the northwest corner of sec. 31, T. 5 N., R. 10 W.

Ap—0 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium and fine granular structure; friable; common fine and very fine roots; few pebbles; moderately acid; clear wavy boundary.

Bt1—12 to 15 inches; brown (10YR 4/3) silty clay loam; weak medium and fine subangular blocky structure; friable; few fine and very fine roots; common faint dark brown (10YR 3/3) clay films on faces of peds; many distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; 2 percent gravel; moderately acid; clear wavy boundary.

Bt2—15 to 22 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium and fine subangular blocky structure; firm; few fine and very fine roots; common distinct dark brown (10YR 3/3) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; 2 percent gravel; slightly acid; clear wavy boundary.

2Bt3—22 to 29 inches; brown (10YR 4/3) gravelly clay loam; moderate medium and fine subangular blocky structure; firm; few fine and very fine roots; many distinct dark brown (7.5YR 3/2) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; 20 percent gravel; neutral; clear wavy boundary.

2Bt4—29 to 32 inches; brown (10YR 4/3) gravelly clay loam; moderate coarse and medium subangular blocky structure; friable; few fine and very fine roots; common distinct dark brown (7.5YR 3/2) clay films on faces of peds; 30 percent gravel; neutral; abrupt wavy boundary.

2BC—32 to 36 inches; dark brown (7.5YR 3/2) gravelly sandy loam; weak coarse and medium subangular blocky structure; friable; few fine and very fine roots; 35 percent gravel; slightly effervescent; slightly alkaline; clear irregular boundary.

2C—36 to 80 inches; brown (10YR 5/3) very gravelly coarse sand; single grain; loose; 60 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Thickness of the mollic epipedon: 10 to 22 inches
Depth to carbonates: 20 to 36 inches
Content of gravel: 0 to 5 percent in the Ap horizon, 0 to 30 percent in the Bt horizon, 15 to 30 percent in the 2Bt horizon, and 30 to 60 percent in the 2C horizon

A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 3
Texture—loam or silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 to 4
Texture—silty clay loam, loam, or clay loam

2Bt horizon:
Color—hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 2 to 4
Texture—gravelly clay loam or gravelly sandy clay loam

2C horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 2 to 4
Texture—gravelly or very gravelly coarse sand

Weikert Series

Depth class: Shallow
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Parent material: Weathered shale and siltstone
Landform: Hills
Position on the landform: Backslopes
Slope range: 20 to 35 percent
Adjacent soils: Brownsville, Cruze, and Shelocta

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

Typical Pedon for Ross County

Weikert silt loam, in an area of Shelocta-Cruze-Weikert association, steep, about 3.1 miles east-southeast of Bainbridge, in Paxton Township; about 7,920 feet north of the intersection of County Road 28 and Township Road 38, along Township Road 38, then 600 feet east:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; common fine roots; 10 percent rock fragments; very strongly acid; clear smooth boundary.
E—2 to 6 inches; brown (10YR 5/3) shaly silt loam; weak fine subangular blocky structure; friable; common fine roots; 25 percent rock fragments; very strongly acid; clear smooth boundary.
Bw—6 to 12 inches; yellowish brown (10YR 5/4) very shaly silt loam; weak fine subangular blocky structure; friable; few fine roots; 60 percent rock fragments; very strongly acid; clear smooth boundary.
R—12 to 15 inches; very dark grayish brown (10YR 3/2), fractured, rippable shale.

Range in Characteristics

Thickness of the solum: 8 to 20 inches
Depth to bedrock: 10 to 20 inches
Content of rock fragments: 5 to 50 percent in the A and E horizons, 35 to 60 percent in the B horizon, and 60 to 85 percent in the C horizon (if it occurs)

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 or 4
Texture—silt loam in the fine-earth fraction

E horizon:
Color—hue of 10YR, value of 5, and chroma of 3 or 4
Texture—silt loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—silt loam or loam in the fine-earth fraction

C horizon (if it occurs):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—silt loam or loam in the fine-earth fraction

Westland Series

Depth class: Very deep
Drainage class: Poorly drained and very poorly drained
Permeability: Moderate in the solum and very rapid in the underlying material
Parent material: Silty material over loamy outwash
Landform: Wisconsinan outwash terraces
Position on the landform: Treads
Slope range: 0 to 2 percent
Adjacent soils: Eldean and Kendallville

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Taxadjunct features: The Westland soils in this survey area do not have an argillic horizon. This difference, however, does not significantly affect the use and management of the soils.

Typical Pedon for Ross County

Westland clay loam, about 4.25 miles southwest of Kingston, in Green Township; about 2,100 feet west and 1,900 feet south of the northeast corner of sec. 30, T. 9 N., R. 21 W.

Ap—0 to 10 inches; black (10YR 2/1) clay loam, dark grayish brown (10YR 4/2) dry; moderate medium

granular structure; friable; few fine roots; 2 percent gravel; neutral; abrupt smooth boundary.

AB—10 to 13 inches; black (10YR 2/1) clay loam; moderate medium and fine subangular blocky structure; firm; few fine roots; common medium faint light olive brown (2.5Y 5/4) masses of iron oxide accumulation; 2 percent gravel; slightly acid; clear smooth boundary.

Btg1—13 to 24 inches; dark gray (10YR 4/1) clay loam; firm; few very fine roots; many distinct very dark gray (N 3/0) clay films on faces of peds; many common distinct dark grayish brown (10YR 4/2) iron depletions in the matrix; many common prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium very dark gray (10YR 3/1) organic coatings on faces of peds; 2 percent gravel; neutral; gradual smooth boundary.

Btg2—24 to 39 inches; dark grayish brown (10YR 4/2) clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common distinct very dark gray (N 3/0) and dark grayish brown (10YR 4/2) clay films on faces of peds; many common prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; few medium very dark gray (10YR 3/1) organic stains on faces of peds; 10 percent gravel; neutral; abrupt smooth boundary.

BCg—39 to 57 inches; dark gray (10YR 4/1) loam; weak coarse subangular blocky structure; friable; few faint very dark gray (N 3/0) clay films on faces of peds; few medium prominent light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; 10 percent gravel; neutral; abrupt smooth boundary.

2C—57 to 80 inches; yellowish brown (10YR 5/4), stratified gravelly coarse sand and coarse sand; single grain; loose; 15 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 20 inches
Depth to carbonates: 40 to 60 inches
Content of gravel: 0 to 4 percent in the Ap horizon, 0 to 5 percent in the upper part of the Btg horizon, 0 to 15 percent in the lower part of the Btg horizon, and 15 to 50 percent in the C horizon

Ap horizon:
Color—hue of 10YR or N, value of 2 to 3, and chroma of 0 to 2
Texture—clay loam

Btg horizon:
Color—hue of 10YR or N, value of 3 to 6, and chroma of 0 to 2
Texture—clay loam or silty clay loam in the upper part and loam or clay loam in the lower part

BC horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 6, and chroma of 1 or 2
Texture—loam, clay loam, or sandy clay loam

C horizon:
Color—hue of 10YR, 2.5Y, or N, value of 4 or 5, and chroma of 0 to 4
Texture—coarse sand or loamy coarse sand in the fine-earth fraction

Wharton Series

Depth class: Deep or very deep
Drainage class: Moderately well drained
Permeability: Moderately slow and slow
Parent material: Residuum derived from shale, siltstone, and fine grained sandstone
Landform: Hills
Position on the landform: Backslopes
Slope range: 15 to 25 percent
Adjacent soils: Gilpin, Latham, and Shelocta

Taxonomic classification: Fine-loamy, mixed, active, mesic Aquic Hapludults

Typical Pedon

Wharton silt loam, in an area of Latham-Wharton silt loams, 15 to 25 percent slopes, about 2 miles west-southwest of Jasper, in Newton Township, in Pike County, Ohio; about 2,240 feet east of the intersection of Long Fork and Smokey Hollow Roads, along Long Fork Road, then about 250 feet south:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many medium roots; 2 percent rock fragments; moderately acid; abrupt smooth boundary.

Bt1—5 to 10 inches; yellowish brown (10YR 5/6) silt loam; moderate fine subangular blocky structure; firm; few fine roots; few fine vesicular pores; few faint yellowish brown (10YR 5/4) clay films on faces of peds; common distinct brown (10YR 5/3) clay depletions on faces of peds; 2 percent rock fragments; moderately acid; clear smooth boundary.

Bt2—10 to 20 inches; strong brown (7.5YR 5/6)

channery silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine vesicular pores; many distinct brown (7.5YR 5/4) clay films on faces of peds; 20 percent rock fragments; strongly acid; gradual smooth boundary.

Bt3—20 to 32 inches; yellowish brown (10YR 5/4) channery silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; very firm; few fine roots; few fine vesicular pores; many prominent light brownish gray (10YR 6/2) clay films on faces of peds; few medium prominent gray (10YR 6/1) iron depletions in the matrix; 15 percent rock fragments; very strongly acid; clear smooth boundary.

Bt4—32 to 40 inches; yellowish brown (10YR 5/4) silty clay; moderate medium prismatic structure parting to moderate medium subangular blocky; very firm; few fine roots; few fine vesicular pores; many prominent light olive brown (2.5Y 5/4) clay films on faces of peds; common medium prominent gray (10YR 6/1) iron depletions in the matrix; 10 percent rock fragments; very strongly acid; gradual smooth boundary.

Bt5—40 to 48 inches; light olive brown (2.5Y 5/4) silty clay; moderate coarse subangular blocky structure; very firm; few very fine vesicular pores; many distinct grayish brown (2.5Y 5/2) clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) iron accumulations in the matrix; few medium prominent black (10YR 2/1) masses of iron and manganese oxide accumulation in the matrix; 10 percent rock fragments; very strongly acid; gradual smooth boundary.

C—48 to 66 inches; light olive brown (2.5Y 5/4) silty clay; massive; very firm; many medium distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; few medium distinct light olive brown (2.5Y 5/6) masses of iron accumulation in the matrix; 10 percent rock fragments; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: 40 to 72 inches
Content of rock fragments: 0 to 15 percent in the Ap horizon, 2 to 20 percent in the Bt horizon, and 2 to 20 percent in the C horizon

Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4
Texture—silt loam

B horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8
Texture—silt loam, silty clay loam, clay loam, or silty clay in the fine-earth fraction

C horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 2 to 6
Texture—silt loam, silty clay, clay loam, or silty clay loam in the fine-earth fraction

Wyatt Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate or moderately slow in the upper part of the solum and slow or very slow in the lower part
Parent material: Loess over lacustrine deposits
Landform: Relict lacustrine terraces
Position on the landform: Treads, risers, toeslopes, and footslopes
Slope range: 2 to 25 percent
Adjacent slopes: Cruze, McGary, Omulga, and Tyler

Taxonomic classification: Fine, illitic, mesic Aquic Hapludalfs

Typical Pedon for Ross County

Wyatt silt loam, 2 to 6 percent slopes, about 2.5 miles east-southeast of Richmond Dale, in Jefferson Township, about 630 feet south and 1,200 feet west of the northeast corner of sec. 11, T. 7 N., R. 20 W.

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many fine and medium roots; moderately acid; abrupt smooth boundary.

Bt1—10 to 14 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—14 to 19 inches; yellowish brown (10YR 5/6) silty clay; moderate medium angular blocky structure; firm; few medium roots; common faint yellowish brown (10YR 5/4) clay films on faces of peds; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; strongly acid; clear smooth boundary.

Bt3—19 to 24 inches; yellowish brown (10YR 5/6) silty

clay; moderate medium angular blocky structure; firm; common distinct grayish brown (10YR 5/2) and common distinct brown (10YR 5/3) clay films on faces of peds; common medium prominent pale brown (10YR 6/3) and grayish brown (10YR 5/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

Bt4—24 to 38 inches; yellowish brown (10YR 5/4) silty clay; weak thin platy structure parting to moderate medium angular blocky; firm; common distinct yellowish brown (10YR 5/4) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; common medium distinct light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; strongly acid; clear wavy boundary.

BC—38 to 48 inches; yellowish brown (10YR 5/6) silty clay; massive; firm; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

C1—48 to 70 inches; yellowish brown (10YR 5/4), stratified clay and silty clay loam; massive; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many medium distinct dark yellowish brown (10YR 4/4) iron accumulations in the matrix; few fine rounded masses of secondary lime; slightly effervescent; moderately alkaline; clear wavy boundary.

C2—70 to 80 inches; yellowish brown (10YR 5/4), stratified clay and silty clay loam; massive; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; few fine rounded masses of secondary lime; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 36 to 60 inches
Depth to carbonates: 40 to more than 60 inches
Thickness of the loess mantle: 0 to 12 inches

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam or silty clay loam

Bt horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 to 6
Texture—silty clay or clay; silty clay loam included in the upper part

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 3 or 4
Texture—stratified silty clay, clay, and silty clay loam

Formation of the Soils

In this section the major factors of soil formation are described and related to the soils in Ross County. Also, some of the processes of soil formation are described.

Factors of Soil Formation

Soil is a three-dimensional natural body capable of supporting plant growth. The nature of the soil at a specific site is the result of the interaction of many factors and processes. The major factors of soil formation are parent material, climate, living organisms, topography, and time (Jenny, 1941).

Parent Material

Parent material is the unconsolidated material in which soils form. The soils in Ross County formed in bedrock residuum, colluvium, loess, eolian sand, alluvium, lacustrine sediments, and material deposited by glaciers.

Gilpin and Latham soils formed entirely in bedrock residuum. The texture of these soils is influenced by the texture of the bedrock from which they weathered.

Colluvium is material that has been moved downslope by gravity. Because of this downslope movement, the soils on the lower, more concave parts of the slopes are deeper than those on the upper parts and have disoriented rock fragments. Shelocta soils formed entirely in colluvium. Cruze and Brownsville soils formed in colluvium and residuum.

Loess is fine grained material deposited by the wind. Coolville and Tilsit soils formed in loess and in the underlying residuum. Soils that formed in loess, colluvium, old alluvium, or lacustrine material in preglacial valleys are Omulga, Tyler, and Wyatt.

Eolian material is earthy parent material accumulated through wind action. Princeton soils formed entirely in eolian materials.

Haymond, Gessie, and Tioga soils formed in recent alluvium, which is material deposited by streams. Ockley soils formed in outwash material, which was deposited by glacial meltwater.

A common parent material in Ross County is a thick layer of material deposited by glaciers. This material consists of till or outwash of the Wisconsinan or Illinoian age. The Illinoian materials are older than the Wisconsinan materials, have weathered to a greater depth, and are more strongly leached. Much of the Illinoian till plain is covered with loess. The soils in these areas are silty in the upper part and loamy in the lower part, which formed in till. Avonburg and Rossmoyne soils are examples. Illinoian outwash soils formed in sandy and gravelly outwash that is mantled with loess of various thicknesses. Libre and Pike soils are examples.

Wisconsinan till is calcareous within a depth of 60 inches. Celina, Crosby, Kokomo, and Miamian soils are examples of soils that formed in this type of till.

Wisconsinan outwash soils have loamy, clayey, or sandy textures, and various thicknesses of sand and gravel underlie these soils in most areas. Eldean, Ockley, and Fox soils are examples.

Some soils in the county formed in lacustrine, or slackwater, deposits of fine sand, silt, and clay. These soils are scattered throughout the county. Markland, Patton, and Fitchville soils are examples.

Climate

Climate affects the physical, chemical, and biological relationships in the soils. It influences the kind and number of plants and animals on and in the soil, the weathering of rocks and minerals, the susceptibility of the soils to erosion, and the rate of soil formation.

The climate of Ross County is humid and temperate. The average annual precipitation is about 39 inches. The average air temperature is about 72 degrees F in the summer and about 30 degrees F in the winter. The soils are almost never dry and are subject to leaching throughout most of the year. Clay minerals have been moved from the surface layer to the subsoil.

Living Organisms

Plants and animals, mainly plants and micro-organisms, are active soil-forming factors. They modify the color and organic matter content of the soil.

Through their roots, plants transfer nutrients from the lower part of the solum to the upper soil layers, and plants and earthworms are primary producers of channels through which air and water move to modify soil structure. Micro-organisms and animals mix and decompose organic material, thus making nutrients available to plants and generally improving the condition of the soil.

The native vegetation in the county was dominantly deciduous trees, mainly oaks, beeches, maples, yellow-poplar, and hickories. Because of flooding and glaciation, grasses replaced hardwoods as the dominant vegetation in some areas on the bottom land and terraces along the major streams. Ross and Warsaw soils are typical soils in these grass-dominated lowland areas. These soils have a thick, dark surface layer.

Topography

Topography influences soils mainly through its effect on drainage, soil mass movement, and erosion. It directly affects the microclimate. Slopes that face south or southwest are drier and less productive than those that face north or northeast. Aspect affects the degree of exposure to the prevailing winds and to direct sunlight and thus also affects evapotranspiration, the breakdown of organic material, and the growth rate of vegetation. Soils that formed in similar parent material but in different topographic positions can show predictable differences in internal drainage. Such a pattern is called a drainage sequence, or soil catena. For example, the well drained Miamian soils, the moderately well drained Celina soils, the somewhat poorly drained Crosby soils, and the very poorly drained Kokomo soils make up a drainage sequence. All of these soils formed in the same parent material but occur in different positions. From an equal amount of rainfall, sloping soils receive less water than nearly level soils and depressional soils receive more than nearly level soils.

Time

Time is required for changes to take place in the parent material and for uniquely different kinds of soil to form. The length of time required for soil formation in Ross County has been greatly influenced by the parent material and by topography. Gently sloping or nearly level soils tend to exhibit the greatest degree of profile development. Exceptions are soils on flood plains, where the frequent deposition of alluvial material has limited the development of distinct horizons.

Processes of Soil Formation

Soil forms through complex, continuing processes that can be grouped into four general categories—additions, removals, transfers, and alterations.

The accumulation of organic matter in the formation of mineral soils is the addition process. The addition of organic residue has produced a dark surface layer. The upper part of the soil profile originally was not darker than the lower part. Soils that show characteristics of the addition process are Kokomo, Ross, Rossburg, and Sloan soils.

The loss of lime from the upper 2 or 3 feet of most of the soils in Ross County is an example of the removal process. Although the parent material was limy, water percolating through the soil has leached the lime from the upper part of the soil. Celina and Crosby soils have had carbonates leached from the upper part of the profile.

Water is the carrier for most of the transfers that have occurred in the formation of soils in Ross County. Clay has been transferred from the A horizon to the B horizon in many of the soils. The A horizon has become a zone of eluviation, and the B horizon a zone of illuviation. Thin clay films are in pores and on ped surfaces in the B horizon of some soils. The presence of clay films is an important criterion in soil classification.

The reduction and dissolution of ferrous iron is an alteration process. This process has taken place in the very poorly drained soils. Reduction of iron, or gleying, is evident in Patton and Kokomo soils. It is the result of a recurring water table. Gray soil colors indicate gleying. Reduced iron is soluble; however, the iron in the soils in Ross County commonly has remained in the horizon where it originated or precipitated in the underlying horizon. Iron can be reoxidized and segregated in places to form yellowish brown mottles that are brighter than the surrounding soil. The alteration of iron causes mottling in soils that are not well drained.

References

American Association of State Highway and Transportation Officials (AASHTO). 2000. Standard specifications for transportation materials and methods of sampling and testing. 20th edition, 2 volumes.

American Society for Testing and Materials (ASTM). 2001. Standard classification of soils for engineering purposes. ASTM Standard D 2487-00.

Barnet, John W. 1962. Regional silviculture of the United States.

Boyne, David H. 1979. Ohio farm income. Ohio Agricultural Research and Development Center.

Braun, E. Lucy. 1950. Deciduous forests of eastern North America.

Carmean, Willard H. 1967. Soil survey refinements for predicting black oak site quality in southeastern Ohio. Soil Science Society of America Proceedings 31: 805-810.

Carmean, Willard H., and Burl S. Ashley. 1972. How to judge black oak site quality. U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station.

Carter, Homer L., and Mark A. Evans. 1983. Ohio agricultural statistics, 1982.

Chapman and Demeritt. 1936. Elements of forest mensuration. 2nd edition.

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.

Dennis, Donald F., and Thomas W. Birch. 1981. Forest statistics for Ohio, 1979. U.S. Department of Agriculture, Forest Service, Bulletin NE-68.

Eyre, F.H., editor. 1980. Forest cover types of the United States and Canada. Society of American Forestry.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. February 24, 1995. Hydric soils of the United States.

Goldthwait, Richard P., George W. White, and Jane L. Forsyth. 1961. Glacial map of Ohio. U.S. Geological Survey, Miscellaneous Geological Inventory, Map I-316.

Hansen, Michael C. 1987. The Teays River. Ohio Geology Newsletter. Ohio Department of Natural Resources, Division of Geological Survey.

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.

Ohio State University Extension. 1995. Ohio agronomy guide. Ohio State University Bulletin 472, Agdex 112.

Petro, James H., William H. Shumate, and Marion F. Tabb. 1967. Soil survey of Ross County, Ohio. U.S. Department of Agriculture.

Quinn, Michael John. 1974. The glacial geology of Ross County, Ohio. (Ph.D. dissertation, The Ohio State University)

Ramey, Matthews, Brown, and Delong. 1993. Ohio agricultural statistics, 1992.

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.

Stout, Wilber, and G.F. Lamb. 1938. Physiographic features of southeastern Ohio. Ohio Journal of Science 38: 49-83.

Stout, Wilber, Karl Versteeg, and G.F. Lamb. 1943 (reprinted 1968). Geology of waters in Ohio. Series 4, Bulletin 44.

Thornbury, William D. 1969. Principles of geomorphology. 2nd edition.

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. 1971. Ohio soil and water conservation needs inventory.

United States Department of Agriculture. 1984. Ross Soil and Water Conservation District resources inventory. Soil Conservation Service and Economic Research Service.

United States Department of Agriculture, Natural Resources Conservation Service. National engineering handbook. (Available in the State office of the Natural Resources Conservation Service in Columbus, Ohio)

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. (Available in the State office of the Natural Resources Conservation Service in Columbus, Ohio)

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook. (Available in the State office of the Natural Resources Conservation Service in Columbus, Ohio)

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

United States Department of Agriculture, Soil Conservation Service. 1987. Basic statistics, 1982 national resources inventory. Statistical Bulletin 756.

United States Department of Commerce, Bureau of the Census. 1990. Census of population.

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.

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.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

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.

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.

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.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

California bearing ratio (CBR). The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material 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.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. 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.

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, 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.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Concretions. Cemented bodies with crude internal

symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic 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.

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.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material

that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

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.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

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*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

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.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

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.

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.

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.

Haul roads. Access roads leading from log landings to primary or surfaced roads.

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.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration 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.

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Kame. An irregular, short ridge or hill of stratified glacial drift.

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.

Log landings. Areas within or adjacent to the tree harvesting area where logs are yarded after being felled.

Low strength. The soil is not strong enough to support loads.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal 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.

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).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

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.

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.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A 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.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential 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.

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

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.

Riser. The relatively short, steep sloping area below a terrace tread that grades to a lower terrace tread or base level.

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.

Rock outcrops. Exposures of bare bedrock.

Root zone. The part of the soil that can be penetrated by plant roots.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments 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.

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.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

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.

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.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slackwater. A still body of water in a stream.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

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 2 percent
Gently sloping	2 to 6 percent
Strongly sloping	6 to 12 percent
Moderately steep	12 to 20 percent
Steep	20 to 35 percent
Very steep	35 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 2 percent
Undulating	2 to 6 percent and 0 to 4 percent
Rolling	6 to 15 percent and 6 to 12 percent
Hilly	12 to 20 percent
Steep	20 to 35 percent
Very steep	35 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

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. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

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.

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.

Trafficability. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

Tread. The relatively flat terrace surface that was cut or built by stream or wave action.

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 1961-90 at Waverly, Ohio)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	38.7	18.1	28.4	68	-14	4	2.25	1.07	3.27	6	5.4
February---	42.8	20.8	31.8	70	-8	5	2.29	.91	3.45	5	5.4
March------	55.4	30.6	43.0	83	7	57	3.68	2.09	5.09	7	2.8
April------	66.6	39.0	52.8	87	19	169	3.59	2.13	4.89	7	.1
May--------	75.3	48.8	62.1	91	28	381	4.14	2.15	5.88	8	.0
June-------	82.8	57.6	70.2	94	40	606	3.04	1.29	4.52	6	.0
July-------	86.0	62.3	74.1	96	46	748	4.06	2.76	5.25	7	.0
August-----	84.6	60.5	72.5	96	43	687	4.30	2.19	6.14	6	.0
September--	78.7	53.6	66.1	92	32	484	2.95	1.51	4.20	5	.0
October----	68.0	40.6	54.3	85	20	188	2.48	1.00	3.72	5	.0
November---	56.0	32.6	44.3	79	11	54	3.04	1.62	4.28	6	.8
December---	43.7	23.8	33.7	70	-5	9	2.98	1.54	4.24	6	2.5
Yearly:											
Average---	64.9	40.7	52.8	---	---	---	---	---	---	---	---
Extreme---	---	---	---	97	-16	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,389	38.78	32.15	43.00	74	17.0

* 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 (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Waverly, Ohio)

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. 23	May 6	May 19
2 years in 10 later than--	Apr. 18	May 1	May 14
5 years in 10 later than--	Apr. 8	Apr. 22	May 4
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 13	Oct. 7	Sept. 25
2 years in 10 earlier than--	Oct. 20	Oct. 12	Sept. 29
5 years in 10 earlier than--	Nov. 2	Oct. 22	Oct. 6

Table 3.--Growing Season

(Recorded in the period 1961-90 at Waverly, Ohio)

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	179	162	138
8 years in 10	188	168	144
5 years in 10	206	182	155
2 years in 10	224	195	167
1 year in 10	233	202	172

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
Aa	Adrian muck	298	*
AcC2	Alexandria silt loam, 6 to 12 percent slopes, eroded	522	0.1
AcD2	Alexandria silt loam, 12 to 20 percent slopes, eroded	1,463	0.3
AcE2	Alexandria silt loam, 20 to 35 percent slopes, eroded	2,580	0.6
AeE2	Alexandria-Fox complex, 20 to 35 percent slopes, eroded	1,174	0.3
AvA	Avonburg silt loam, 0 to 2 percent slopes	1,975	0.4
AvB	Avonburg silt loam, 2 to 6 percent slopes	151	*
BeD	Berks channery silt loam, 12 to 20 percent slopes	376	*
BeE	Berks channery silt loam, 20 to 35 percent slopes	187	*
BgC	Berks-Tarhollow complex, 6 to 15 percent slopes	3,727	0.8
CaB	Cana silt loam, 2 to 6 percent slopes	668	0.2
CaC2	Cana silt loam, 6 to 12 percent slopes, eroded	3,031	0.7
CaD2	Cana silt loam, 12 to 20 percent slopes, eroded	6,745	1.5
CaE2	Cana silt loam, 20 to 35 percent slopes, eroded	2,822	0.6
Cd	Carlisle muck	174	*
CeD	Casco-Rodman complex, 12 to 18 percent slopes	123	*
CgA	Celina silt loam, 0 to 2 percent slopes	286	*
CgB	Celina silt loam, 2 to 6 percent slopes	14,430	3.3
CgB2	Celina silt loam, 2 to 6 percent slopes, eroded	1,066	0.2
ChA	Chavies silt loam, rarely flooded	72	*
CmA	Cidermill silt loam, 0 to 2 percent slopes	991	0.2
CmB	Cidermill silt loam, 2 to 6 percent slopes	592	0.1
Cp	Clifty silt loam, occasionally flooded	7,606	1.7
CrA	Coolville silt loam, 0 to 2 percent slopes	261	*
CrB	Coolville silt loam, 2 to 6 percent slopes	1,743	0.4
CrC2	Coolville silt loam, 6 to 12 percent slopes, eroded	4,595	1.0
CvA	Crosby silt loam, 0 to 2 percent slopes	19,390	4.4
CvB	Crosby silt loam, 2 to 6 percent slopes	5,951	1.3
CwC2	Cruze silt loam, 6 to 12 percent slopes, eroded	3,755	0.8
CwD	Cruze silt loam, 12 to 20 percent slopes	14,608	3.3
CwE	Cruze silt loam, 20 to 35 percent slopes	37,196	8.4
DAM	Dam	4	*
EeA	Eldean loam, 0 to 2 percent slopes	8,941	2.0
EeB	Eldean loam, 2 to 6 percent slopes	5,259	1.2
EeC2	Eldean loam, 6 to 12 percent slopes, eroded	987	0.2
EgA	Eldean gravelly loam, 0 to 2 percent slopes	750	0.2
EgB	Eldean gravelly loam, 2 to 6 percent slopes	1,775	0.4
EgC2	Eldean gravelly loam, 6 to 12 percent slopes, eroded	504	0.1
ErD	Ernest silt loam, 15 to 25 percent slopes	5	*
EuA	Euclid silt loam, rarely flooded	1,625	0.4
FhA	Fitchville silt loam, 0 to 2 percent slopes	3,001	0.7
FhB	Fitchville silt loam, 2 to 6 percent slopes	425	*
FnB	Fox loam, 2 to 6 percent slopes	25	*
FnC2	Fox loam, 6 to 12 percent slopes, eroded	624	0.1
Ge	Gessie silt loam, occasionally flooded	17,914	4.0
Gf	Gessie silt loam, frequently flooded	5,601	1.3
GgC2	Gilpin silt loam, 6 to 12 percent slopes, eroded	418	*
GhC	Gilpin-Tilsit complex, 6 to 12 percent slopes	1,698	0.4
GnA	Glenford silt loam, 0 to 2 percent slopes	738	0.2
GnB	Glenford silt loam, 2 to 6 percent slopes	873	0.2
HaB	Haubstadt silt loam, 2 to 6 percent slopes	376	*
HaC2	Haubstadt silt loam, 6 to 12 percent slopes, eroded	546	0.1
Hd	Haymond silt loam, occasionally flooded	2,911	0.7
HeA	Henshaw silt loam, 0 to 4 percent slopes	12	*
HkD2	Hickory silt loam, 12 to 20 percent slopes, eroded	131	*
HkE2	Hickory silt loam, 20 to 35 percent slopes, eroded	329	*
Ht	Huntington silt loam, occasionally flooded	245	*
KaA	Kendallville silt loam, 0 to 2 percent slopes	395	*
KaB	Kendallville silt loam, 2 to 6 percent slopes	3,317	0.7
KeC2	Kendallville-Eldean complex, 6 to 12 percent slopes, eroded	4,139	0.9
KeD2	Kendallville-Eldean complex, 12 to 20 percent slopes, eroded	3,131	0.7
KeE2	Kendallville-Eldean complex, 20 to 35 percent slopes, eroded	2,232	0.5

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
Kn	Kinn silt loam, occasionally flooded	2,658	0.6
Ko	Kokomo silt loam, overwash	509	0.1
Kp	Kokomo silty clay loam	17,712	4.0
LfC2	Latham silt loam, 6 to 12 percent slopes, eroded	621	0.1
LfD2	Latham silt loam, 12 to 20 percent slopes, eroded	874	0.2
LfE	Latham silt loam, 20 to 35 percent slopes	380	*
LgD	Latham-Wharton complex, 15 to 25 percent slopes	621	0.1
LrB	Libre silt loam, 2 to 6 percent slopes	242	*
LrC2	Libre silt loam, 6 to 12 percent slopes, eroded	1,088	0.2
MaB	Markland silt loam, 2 to 6 percent slopes	168	*
MbC2	Markland silty clay loam, 6 to 12 percent slopes, eroded	438	*
MbD2	Markland silty clay loam, 12 to 20 percent slopes, eroded	311	*
MbE2	Markland silty clay loam, 20 to 35 percent slopes, eroded	244	*
McA	Martinsville loam, rarely flooded	166	*
MdA	McGary silt loam, 0 to 2 percent slopes	429	*
MdB	McGary silt loam, 2 to 6 percent slopes	135	*
MeC2	Mentor silt loam, 6 to 12 percent slopes, eroded	702	0.2
MeD2	Mentor silt loam, 12 to 20 percent slopes, eroded	512	0.1
MfA	Mentor silt loam, rarely flooded	561	0.1
MgA	Mentor silt loam, gravelly substratum, 0 to 2 percent slopes	2,914	0.7
MgB	Mentor silt loam, gravelly substratum, 2 to 6 percent slopes	657	0.1
MhB	Miamian silt loam, 2 to 6 percent slopes	10,766	2.4
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded	11,255	2.5
MhC2	Miamian silt loam, 6 to 12 percent slopes, eroded	19,789	4.5
MhD2	Miamian silt loam, 12 to 20 percent slopes, eroded	5,759	1.3
MhE	Miamian silt loam, 20 to 35 percent slopes	7,124	1.6
MmC2	Miamian silt loam, bedrock substratum, 6 to 12 percent slopes, eroded	1,079	0.2
MmD2	Miamian silt loam, bedrock substratum, 12 to 20 percent slopes, eroded	371	*
MnB	Miamian-Lewisburg complex, 2 to 6 percent slopes	166	*
MoB	Milton silt loam, 2 to 6 percent slopes	84	*
MoC2	Milton silt loam, 6 to 12 percent slopes, eroded	80	*
MoE2	Milton silt loam, 20 to 35 percent slopes, eroded	373	*
NeC2	Negley loam, 6 to 12 percent slopes, eroded	520	0.1
NeD2	Negley loam, 12 to 20 percent slopes, eroded	2,382	0.5
NeE2	Negley loam, 20 to 35 percent slopes, eroded	7,458	1.7
NnA	Nineveh silt loam, 0 to 2 percent slopes	518	0.1
NnB	Nineveh silt loam, 2 to 6 percent slopes	178	*
ObA	Ockley loam, 0 to 2 percent slopes	2,665	0.6
ObB	Ockley loam, 2 to 6 percent slopes	1,742	0.4
OmB	Omulga silt loam, 2 to 6 percent slopes	1,955	0.4
OmC2	Omulga silt loam, 6 to 12 percent slopes, eroded	550	0.1
Or	Orrville silt loam, frequently flooded	50	*
OwB	Otwell silt loam, 2 to 6 percent slopes	144	*
Pc	Patton silty clay loam, sandy substratum	2,851	0.6
Pg	Peoga silt loam	589	0.1
PkA	Pike silt loam, 0 to 2 percent slopes	1,873	0.4
PkB	Pike silt loam, 2 to 6 percent slopes	1,355	0.3
Pn	Pits, gravel	761	0.2
Po	Pits, quarry	185	*
Pp	Pope silt loam, frequently flooded	21	*
PtB	Princeton sandy loam, 2 to 6 percent slopes	408	*
PtC	Princeton sandy loam, 6 to 12 percent slopes	259	*
PtD	Princeton sandy loam, 12 to 20 percent slopes	116	*
RbA	Rainsboro silt loam, 0 to 2 percent slopes	753	0.2
RbB	Rainsboro silt loam, 2 to 6 percent slopes	2,155	0.5
RbC2	Rainsboro silt loam, 6 to 12 percent slopes, eroded	1,603	0.4
RcF	Rigley-Rock outcrop association, very steep	65	*
RdD2	Rodman gravelly loam, 12 to 20 percent slopes, eroded	1,076	0.2
RdE2	Rodman gravelly loam, 20 to 35 percent slopes, eroded	1,487	0.3
Rn	Ross silt loam, occasionally flooded	6,960	1.6
Ro	Rossburg silt loam, rarely flooded	2,856	0.6
RpA	Rossmoyne silt loam, 0 to 2 percent slopes	423	*
RpB	Rossmoyne silt loam, 2 to 6 percent slopes	7,213	1.6

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
RpC2	Rossmoyne silt loam, 6 to 12 percent slopes, eroded	2,387	0.5
RsB	Rossmoyne-Cana complex, 2 to 6 percent slopes	349	*
RsC2	Rossmoyne-Cana complex, 6 to 12 percent slopes, eroded	5,959	1.3
SfD	Shelocta silt loam, 12 to 20 percent slopes	796	0.2
SgF	Shelocta-Brownsville association, very steep	21,915	4.9
ShE	Shelocta-Cruze-Weikert association, steep	33,970	7.7
SkE	Shelocta-Rigley association, steep	1,072	0.2
Sp	Skidmore cobbly silt loam, occasionally flooded	2,266	0.5
St	Sloan silty clay loam, occasionally flooded	1,973	0.4
SuB	Spargus channery silt loam, 2 to 6 percent slopes	1,259	0.3
Sv	Stonelick loam, occasionally flooded	542	0.1
Sw	Stonelick fine sandy loam, frequently flooded	2,046	0.5
TbA	Taggart silt loam, 0 to 2 percent slopes	1,625	0.4
ThC3	Thrifton clay loam, 6 to 12 percent slopes, severely eroded	3,442	0.8
ThD3	Thrifton clay loam, 12 to 20 percent slopes, severely eroded	3,852	0.9
ThE3	Thrifton clay loam, 20 to 35 percent slopes, severely eroded	692	0.2
TnA	Tilsit silt loam, 0 to 2 percent slopes	1,260	0.3
To	Tioga fine sandy loam, frequently flooded	690	0.2
TyA	Tyler silt loam, 0 to 2 percent slopes	809	0.2
Ud	Udorthents, loamy	780	0.2
W	Water	3,435	0.8
WcA	Warsaw loam, 0 to 2 percent slopes	145	*
Wk	Westland clay loam	3,091	0.7
WtB	Wyatt silt loam, 2 to 6 percent slopes	455	0.1
WyC2	Wyatt silty clay loam, 6 to 12 percent slopes, eroded	424	*
WyD2	Wyatt silty clay loam, 12 to 18 percent slopes, eroded	806	0.2
	Total	443,488	100.0

* Less than 0.1 percent.

Table 5.--Cropland Limitations and Hazards

(See text for descriptions of the limitations and hazards listed in this table. Only the soils that are suitable for cultivated crops are listed.)

Map symbol and soil name	Cropland limitations and hazards
AcC2, AcD2:	
Alexandria	Part of the surface layer removed by erosion, surface compaction, fair tilth, surface crusting, easily eroded, erosion hazard, high clay content
AvA:	
Avonburg	Seasonal high water table, surface compaction, frost action, surface crusting, restricted permeability
AvB:	
Avonburg	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, restricted permeability
BeD:	
Berks	Depth to bedrock, high potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity
BgC:	
Berks	Depth to bedrock, high potential for ground-water pollution, erosion hazard, limited available water capacity
Tarhollow	Surface compaction, frost action, surface crusting, easily eroded, erosion hazard, high clay content
CaB:	
Cana	Surface compaction, frost action, surface crusting, erosion hazard
CaC2, CaD2:	
Cana	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard
CeD:	
Casco	High potential for ground-water pollution, easily eroded, erosion hazard, wind erosion, limited available water capacity
Rodman	High potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity, sandy layers
CgA:	
Celina	Surface compaction, frost action, surface crusting, root-restrictive layer
CgB:	
Celina	Surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer
CgB2:	
Celina	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer
ChA:	
Chavies	Surface compaction, moderate potential for ground-water pollution, surface crusting, wind erosion
CmA:	
Cidermill	Surface compaction, high potential for ground-water pollution, surface crusting

Table 5.--Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
CmB:	
Cidermill	Surface compaction, high potential for ground-water pollution, surface crusting, erosion hazard
Cp:	
Clifty	Occasional flooding, surface compaction, moderate potential for ground-water pollution, surface crusting
CrA:	
Coolville	Surface compaction, frost action, surface crusting
CrB:	
Coolville	Surface compaction, frost action, surface crusting, erosion hazard
CrC2:	
Coolville	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, limited available water capacity, restricted permeability, high clay content
CvA:	
Crosby	Seasonal high water table, surface compaction, frost action, surface crusting, limited available water capacity, root-restrictive layer, high clay content
CvB:	
Crosby	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer, high clay content
CwC2:	
Cruze	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, high clay content
CwD:	
Cruze	Surface compaction, frost action, surface crusting, easily eroded, erosion hazard, high clay content
EeA:	
Eldean	High potential for ground-water pollution, limited available water capacity, high clay content
EeB:	
Eldean	High potential for ground-water pollution, erosion hazard, limited available water capacity, high clay content
EeC2:	
Eldean	Part of the surface layer removed by erosion, high potential for ground-water pollution, fair tilth, easily eroded, erosion hazard, limited available water capacity, high clay content
EgA:	
Eldean	High potential for ground-water pollution, limited available water capacity, high clay content
EgB:	
Eldean	High potential for ground-water pollution, erosion hazard, limited available water capacity, high clay content

Table 5.--Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
EgC2:	
Eldean	Part of the surface layer removed by erosion, high potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity, high clay content
ErD:	
Ernest	Surface compaction, surface crusting, easily eroded, erosion hazard, limited available water capacity, root-restrictive layer
EuA:	
Euclid	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
FhA:	
Fitchville	Seasonal high water table, surface compaction, frost action, surface crusting
FhB:	
Fitchville	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard
FnB:	
Fox	High potential for ground-water pollution, erosion hazard
FnC2:	
Fox	Part of the surface layer removed by erosion, high potential for ground-water pollution, fair tilth, easily eroded, erosion hazard
Ge:	
Gessie	Occasional flooding, surface compaction, surface crusting
Gf:	
Gessie	Frequent flooding, surface compaction, surface crusting
GgC2:	
Gilpin	Part of the surface layer removed by erosion, surface compaction, depth to bedrock, high potential for ground-water pollution, fair tilth, surface crusting, easily eroded, erosion hazard, limited available water capacity
GhC:	
Gilpin	Surface compaction, depth to bedrock, high potential for ground-water pollution, surface crusting, easily eroded, erosion hazard, limited available water capacity
Tilsit	Surface compaction, surface crusting, easily eroded, erosion hazard, limited available water capacity, root-restrictive layer
GnA:	
Glenford	Surface compaction, frost action, surface crusting
GnB:	
Glenford	Surface compaction, frost action, surface crusting, erosion hazard
HaB:	
Haubstadt	Surface compaction, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer
HaC2:	
Haubstadt	Part of the surface layer removed by erosion, surface compaction, fair tilth, surface crusting, easily eroded, erosion hazard, limited available water capacity, root-restrictive layer

Table 5.--Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
Hd:	
Haymond	Occasional flooding, surface compaction, frost action, surface crusting
HeA:	
Henshaw	Seasonal high water table, surface compaction, high potential for ground-water pollution, surface crusting
HkD2:	
Hickory	Part of the surface layer removed by erosion, surface compaction, fair tilth, surface crusting, easily eroded, erosion hazard
Ht:	
Huntington	Occasional flooding, surface compaction, frost action
KaA:	
Kendallville	Surface compaction, surface crusting
KaB:	
Kendallville	Surface compaction, surface crusting, erosion hazard
KeC2, KeD2:	
Kendallville	Part of the surface layer removed by erosion, surface compaction, fair tilth, surface crusting, easily eroded, erosion hazard
Eldean	Part of the surface layer removed by erosion, high potential for ground-water pollution, fair tilth, easily eroded, erosion hazard, high clay content
Kn:	
Kinn	Occasional flooding, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
Ko:	
Kokomo	Ponding, surface compaction, moderate potential for ground-water pollution, frost action
Kp:	
Kokomo	Ponding, surface compaction, moderate potential for ground-water pollution, frost action, fair tilth
LfC2, LfD2:	
Latham	Part of the surface layer removed by erosion, surface compaction, depth to bedrock, high potential for ground-water pollution, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, high clay content
LgD:	
Latham	Surface compaction, depth to bedrock, high potential for ground-water pollution, frost action, surface crusting, easily eroded, erosion hazard, high clay content
Wharton	Surface compaction, surface crusting, easily eroded, erosion hazard
LrB:	
Libre	Surface compaction, frost action, surface crusting, erosion hazard
LrC2:	
Libre	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard

Table 5.--Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
MaB:	
Markland	Surface compaction, surface crusting, erosion hazard, high clay content
MbC2, MbD2:	
Markland	Part of the surface layer removed by erosion, surface compaction, fair tilth, surface crusting, easily eroded, erosion hazard, high clay content
McA:	
Martinsville	No limitations or hazards
MdA:	
McGary	Seasonal high water table, surface compaction, frost action, surface crusting, high clay content
MdB:	
McGary	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, high clay content
MeC2, MeD2:	
Mentor	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard
MfA, MgA:	
Mentor	Surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
MgB:	
Mentor	Surface compaction, moderate potential for ground-water pollution, frost action, surface crusting, erosion hazard
MhB:	
Miamian	Surface compaction, surface crusting, erosion hazard, root-restrictive layer
MhB2:	
Miamian	Part of the surface layer removed by erosion, surface compaction, fair tilth, surface crusting, erosion hazard, root-restrictive layer, high clay content
MhC2, MhD2, MmC2, MmD2:	
Miamian	Part of the surface layer removed by erosion, surface compaction, fair tilth, surface crusting, easily eroded, erosion hazard, root-restrictive layer, high clay content
MnB:	
Miamian	Surface compaction, surface crusting, erosion hazard, root-restrictive layer, high clay content
Lewisburg	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer, high clay content
MoB:	
Milton	Surface compaction, depth to bedrock, high potential for ground-water pollution, surface crusting, erosion hazard, limited available water capacity, high clay content

Table 5.--Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
MoC2:	
Milton	Part of the surface layer removed by erosion, surface compaction, depth to bedrock, high potential for ground-water pollution, fair tilth, surface crusting, easily eroded, erosion hazard, limited available water capacity, high clay content
NeC2, NeD2:	
Negley	Part of the surface layer removed by erosion, fair tilth, easily eroded, erosion hazard
NnA:	
Nineveh	Surface compaction, high potential for ground-water pollution, surface crusting
NnB:	
Nineveh	Surface compaction, high potential for ground-water pollution, surface crusting, erosion hazard
ObA:	
Ockley	High potential for ground-water pollution
ObB:	
Ockley	High potential for ground-water pollution, erosion hazard
OmB:	
Omulga	Surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer
OmC2:	
Omulga	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, root-restrictive layer
Or:	
Orrville	Frequent flooding, seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
OwB:	
Otwell	Surface compaction, frost action, surface crusting, erosion hazard
Pc:	
Patton	Ponding, surface compaction, moderate potential for ground-water pollution, frost action, fair tilth
Pg:	
Peoga	Ponding, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
PkA:	
Pike	Surface compaction, frost action, surface crusting
PkB:	
Pike	Surface compaction, frost action, surface crusting, erosion hazard
Pp:	
Pope	Frequent flooding, surface compaction, surface crusting
PtB:	
Princeton	Moderate potential for ground-water pollution, erosion hazard, wind erosion

Table 5.--Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
PtC, PtD:	
Princeton	Moderate potential for ground-water pollution, easily eroded, erosion hazard, wind erosion
RbA:	
Rainsboro	Surface compaction, frost action, surface crusting, limited available water capacity, root-restrictive layer
RbB:	
Rainsboro	Surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer
RbC2:	
Rainsboro	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, limited available water capacity, root-restrictive layer
RdD2:	
Rodman	Part of the surface layer removed by erosion, high potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity, sandy layers
Rn:	
Ross	Occasional flooding, surface compaction
Ro:	
Rossburg	Surface compaction
RpA:	
Rossmoyne	Seasonal high water table, surface compaction, frost action, surface crusting, limited available water capacity, root-restrictive layer
RpB:	
Rossmoyne	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer
RpC2:	
Rossmoyne	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, root-restrictive layer
RsB:	
Rossmoyne	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, root-restrictive layer
Cana	Surface compaction, frost action, surface crusting, erosion hazard
RsC2:	
Rossmoyne	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, root-restrictive layer
Cana	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard
SfD:	
Shelocta	Surface compaction, surface crusting, easily eroded, erosion hazard

Table 5.--Cropland Limitations and Hazards--Continued

Map symbol and soil name	Cropland limitations and hazards
Sp:	
Skidmore	Occasional flooding, stony surface, moderate potential for ground-water pollution, wind erosion, limited available water capacity
St:	
Sloan	Occasional flooding, seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, fair tilth
SuB:	
Spargus	Erosion hazard
Sv:	
Stonelick	Occasional flooding, moderate potential for ground-water pollution
Sw:	
Stonelick	Frequent flooding, moderate potential for ground-water pollution, wind erosion
TbA:	
Taggart	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
ThC3, ThD3:	
Thrifton	Most of the surface layer removed by erosion, surface compaction, fair tilth, easily eroded, erosion hazard, limited available water capacity, clodding, root-restrictive layer
TnA:	
Tilsit	Surface compaction, surface crusting, limited available water capacity, root-restrictive layer
To:	
Tioga	Frequent flooding
TyA:	
Tyler	Seasonal high water table, surface compaction, frost action, surface crusting, limited available water capacity, restricted permeability
WcA:	
Warsaw	High potential for ground-water pollution
Wk:	
Westland	Ponding, surface compaction, high potential for ground-water pollution, frost action, fair tilth
WtB:	
Wyatt	Surface compaction, frost action, surface crusting, erosion hazard, high clay content
WyC2:	
Wyatt	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, clodding, high clay content
WyD2:	
Wyatt	Part of the surface layer removed by erosion, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, restricted permeability, clodding, high clay content

Table 6.--Crop Yield Index

(The information in this table is based on yields from the years 1992-2000. Estimated yields for soils with a yield index of 100 are 160 bushels of corn, 55 bushels of soybeans, and 65 bushels of winter wheat. See text for more information on converting yield index numbers to estimated yields. Absence of an entry 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	Corn	Soybeans	Winter wheat
Aa. Adrian			
AcC2 Alexandria	69	60	62
AcD2 Alexandria	53	45	54
AcE2. Alexandria			
AeE2. Alexandria-Fox			
AvA, AvB Avonburg	83	82	85
BeD Berks	50	36	38
BeE. Berks			
BgC Berks-Tarhollow	53	55	54
CaB Cana	69	73	74
CaC2 Cana	62	64	69
CaD2 Cana	53	55	62
CaE2. Cana			
Cd. Carlisle			
CeD Casco-Rodman	38	36	31
CgA, CgB Celina	81	82	83
CgB2 Celina	78	76	77
ChA Chavies	86	82	83

Table 6.--Crop Yield Index--Continued

Map symbol and soil name	Corn	Soybeans	Winter wheat
CmA Cidermill	84	82	74
CmB Cidermill	82	76	68
Cp Clifty	76	64	---
CrA, CrB Coolville	69	64	62
CrC2 Coolville	59	51	54
CvA, CvB Crosby	79	73	77
CwC2 Cruze	59	45	46
CwD Cruze	53	36	46
CwE. Cruze			
DAM. Dam			
EeA, EeB Eldean	79	73	69
EeC2 Eldean	72	55	62
EgA, EgB Eldean	79	73	69
EgC2 Eldean	72	55	62
ErD Ernest	66	36	54
EuA Euclid	77	73	69
FhA, FhB Fitchville	78	82	69
FnB Fox	75	73	69
FnC2 Fox	69	55	62
Ge Gessie	97	91	---
Gf Gessie	92	87	---

Table 6.--Crop Yield Index--Continued

Map symbol and soil name	Corn	Soybeans	Winter wheat
GgC2 Gilpin	59	45	54
GhC Gilpin-Tilsit	59	45	54
GnA, GnB Glenford	81	82	69
HaB Haubstadt	79	73	69
HaC2 Haubstadt	69	55	54
Hd Haymond	81	91	---
HeA Henshaw	81	91	69
HkD2 Hickory	53	45	54
HkE2. Hickory			
Ht Huntington	95	95	---
KaA, KaB Kendallville	79	73	69
KeC2 Kendallville-Eldean	72	64	62
KeD2 Kendallville-Eldean	59	45	54
KeE2. Kendallville-Eldean			
Kn Kinn	89	73	---
Ko, Kp Kokomo	99	98	95
LfC2 Latham	47	45	38
LfD2 Latham	44	36	31
LfE. Latham			
LgD Latham-Wharton	44	36	31
LrB Libre	84	82	69

Table 6.--Crop Yield Index--Continued

Map symbol and soil name	Corn	Soybeans	Winter wheat
LrC2 Libre	81	73	62
MaB Markland	72	73	62
MbC2 Markland	69	55	46
MbD2 Markland	53	45	38
MbE2. Markland			
McA Martinsville	84	87	74
MdA, MdB McGary	72	73	62
MeC2 Mentor	72	64	54
MeD2 Mentor	66	55	46
MfA Mentor	84	82	---
MgA, MgB Mentor	84	82	69
MhB Miamian	81	82	83
MhB2 Miamian	78	73	77
MhC2 Miamian	72	64	69
MhD2 Miamian	59	45	38
MhE. Miamian			
MmC2 Miamian	72	64	69
MmD2 Miamian	59	45	38
MnB Miamian-Lewisburg	78	73	69
MoB Milton	62	55	46
MoC2 Milton	53	45	38

Table 6.--Crop Yield Index--Continued

Map symbol and soil name	Corn	Soybeans	Winter wheat
MoE2. Milton			
NeC2 Negley	72	55	62
NeD2 Negley	59	45	46
NeE2. Negley			
NnA, NnB Nineveh	84	82	77
ObA Ockley	94	87	80
ObB Ockley	94	87	77
OmB Omulga	78	73	69
OmC2 Omulga	72	64	54
Or Orrville	75	64	---
OwB Otwell	78	64	69
Pc Patton	81	82	80
Pg Peoga	81	76	74
PkA Pike	88	87	77
PkB Pike	88	87	74
Pn. Pits, gravel			
Po. Pits, quarry			
Pp Pope	75	64	---
PtB Princeton	72	64	69
PtC Princeton	62	58	62
PtD Princeton	53	44	49

Table 6.--Crop Yield Index--Continued

Map symbol and soil name	Corn	Soybeans	Winter wheat
RbA, RbB Rainsboro	81	73	69
RbC2 Rainsboro	72	64	54
RcF. Rigley-Rock outcrop			
RdD2 Rodman	38	36	31
RdE2. Rodman			
Rn Ross	99	96	---
Ro Rossburg	100	100	100
RpA, RpB Rossmoyne	78	64	62
RpC2 Rossmoyne	72	55	46
RsB Rossmoyne-Cana	78	64	62
RsC2 Rossmoyne-Cana	72	55	46
SfD Shelocta	53	45	38
SgF. Shelocta-Brownsville			
ShE. Shelocta-Cruze-Weikert			
SkE. Shelocta-Rigley			
Sp Skidmore	53	55	62
St Sloan	78	73	---
SuB Spargus	53	55	46
Sv Stonelick	69	64	---
Sw Stonelick	69	64	---
TbA Taggart	81	82	69

Table 6.--Crop Yield Index--Continued

Map symbol and soil name	Corn	Soybeans	Winter wheat
ThC3 Thrifton	44	45	38
ThD3 Thrifton	41	36	31
ThE3. Thrifton			
TnA Tilsit	78	64	62
To Tioga	78	82	---
TyA Tyler	69	55	38
Ud. Udorthents			
WcA Warsaw	84	82	77
Wk Westland	94	96	92
WtB Wyatt	69	64	54
WyC2 Wyatt	59	45	38
WyD2 Wyatt	50	36	31

Table 7.--Capability Classes and Subclasses

(Miscellaneous areas are excluded. Absence of an entry indicates no acreage.)

Class	Total acreage	Major management concerns (subclass) Erosion (e)	Wetness (w)	Soil problem (s)
		Acres	Acres	Acres
1	13,517	---	---	---
2	188,885	76,579	94,346	17,960
3	65,340	59,320	6,020	---
4	42,396	41,320	---	1,076
5	298	---	298	---
6	102,412	102,412	---	---
7	25,475	23,988	---	1,487
8	---	---	---	---

Table 8.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
AvA	Avonburg silt loam, 0 to 2 percent slopes (where drained)
AvB	Avonburg silt loam, 2 to 6 percent slopes (where drained)
CaB	Cana silt loam, 2 to 6 percent slopes
CgA	Celina silt loam, 0 to 2 percent slopes
CgB	Celina silt loam, 2 to 6 percent slopes
CgB2	Celina silt loam, 2 to 6 percent slopes, eroded
ChA	Chavies silt loam, rarely flooded
CmA	Cidermill silt loam, 0 to 2 percent slopes
CmB	Cidermill silt loam, 2 to 6 percent slopes
Cp	Clifty silt loam, occasionally flooded
CrA	Coolville silt loam, 0 to 2 percent slopes
CrB	Coolville silt loam, 2 to 6 percent slopes
CvA	Crosby silt loam, 0 to 2 percent slopes (where drained)
CvB	Crosby silt loam, 2 to 6 percent slopes (where drained)
EeA	Eldean loam, 0 to 2 percent slopes
EeB	Eldean loam, 2 to 6 percent slopes
EgA	Eldean gravelly loam, 0 to 2 percent slopes
EgB	Eldean gravelly loam, 2 to 6 percent slopes
EuA	Euclid silt loam, rarely flooded (where drained)
FhA	Fitchville silt loam, 0 to 2 percent slopes (where drained)
FhB	Fitchville silt loam, 2 to 6 percent slopes (where drained)
FnB	Fox loam, 2 to 6 percent slopes
Ge	Gessie silt loam, occasionally flooded
Gf	Gessie silt loam, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
GnA	Glenford silt loam, 0 to 2 percent slopes
GnB	Glenford silt loam, 2 to 6 percent slopes
HaB	Haubstadt silt loam, 2 to 6 percent slopes
Hd	Haymond silt loam, occasionally flooded
HeA	Henshaw silt loam, 0 to 4 percent slopes (where drained)
Ht	Huntington silt loam, occasionally flooded
KaA	Kendallville silt loam, 0 to 2 percent slopes
KaB	Kendallville silt loam, 2 to 6 percent slopes
Kn	Kinn silt loam, occasionally flooded
Ko	Kokomo silt loam, overwash (where drained)
Kp	Kokomo silty clay loam (where drained)
LrB	Libre silt loam, 2 to 6 percent slopes
MaB	Markland silt loam, 2 to 6 percent slopes
McA	Martinsville loam, rarely flooded
MdA	McGary silt loam, 0 to 2 percent slopes (where drained)
MdB	McGary silt loam, 2 to 6 percent slopes (where drained)
MfA	Mentor silt loam, rarely flooded
MgA	Mentor silt loam, gravelly substratum, 0 to 2 percent slopes
MgB	Mentor silt loam, gravelly substratum, 2 to 6 percent slopes
MhB	Miamian silt loam, 2 to 6 percent slopes
MhB2	Miamian silt loam, 2 to 6 percent slopes, eroded
MnB	Miamian-Lewisburg complex, 2 to 6 percent slopes
MoB	Milton silt loam, 2 to 6 percent slopes
NnA	Nineveh silt loam, 0 to 2 percent slopes
NnB	Nineveh silt loam, 2 to 6 percent slopes
ObA	Ockley loam, 0 to 2 percent slopes
ObB	Ockley loam, 2 to 6 percent slopes
OmB	Omulga silt loam, 2 to 6 percent slopes
Or	Orrville silt loam, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
OwB	Otwell silt loam, 2 to 6 percent slopes
Pc	Patton silty clay loam, sandy substratum (where drained)
Pg	Peoga silt loam (where drained)
PkA	Pike silt loam, 0 to 2 percent slopes

Table 8.--Prime Farmland--Continued

Map symbol	Soil name
PkB	Pike silt loam, 2 to 6 percent slopes
Pp	Pope silt loam, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
PtB	Princeton sandy loam, 2 to 6 percent slopes
RbA	Rainsboro silt loam, 0 to 2 percent slopes
RbB	Rainsboro silt loam, 2 to 6 percent slopes
Rn	Ross silt loam, occasionally flooded
Ro	Rossburg silt loam, rarely flooded
RpA	Rossmoyne silt loam, 0 to 2 percent slopes
RpB	Rossmoyne silt loam, 2 to 6 percent slopes
RsB	Rossmoyne-Cana complex, 2 to 6 percent slopes
St	Sloan silty clay loam, occasionally flooded (where drained)
Sv	Stonelick loam, occasionally flooded
Sw	Stonelick fine sandy loam, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
TbA	Taggart silt loam, 0 to 2 percent slopes (where drained)
TnA	Tilsit silt loam, 0 to 2 percent slopes
To	Tioga fine sandy loam, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
TyA	Tyler silt loam, 0 to 2 percent slopes (where drained)
WcA	Warsaw loam, 0 to 2 percent slopes
Wk	Westland clay loam (where drained)
WtB	Wyatt silt loam, 2 to 6 percent slopes

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay 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	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
Aa---------- Adrian	D-1	---	---	---	---
AcC2---------- Alexandria	A-1	3.6	3.5	4.3	5.6
AcD2---------- Alexandria	A-1	3.2	3.2	3.9	5.1
AcE2---------- Alexandria	A-3	---	---	---	---
AeE2---------- Alexandria-Fox	A-3	---	---	---	---
AvA, AvB---------- Avonburg	C-2	3.6	5.2	3.8	7.6
BeD---------- Berks	F-1	3.1	3.0	3.0	3.2
BeE---------- Berks	F-2	---	---	---	---
BgC----------		3.0	3.5	3.2	3.7
Berks----------	F-1				
Tarhollow----------	A-6				
CaB---------- Cana	A-6	3.6	5.4	4.4	5.6
CaC2---------- Cana	A-6	3.4	5.2	4.2	5.4
CaD2---------- Cana	A-6	3.0	4.3	3.7	4.6
CaE2---------- Cana	A-3	---	---	---	---
Cd---------- Carlisle	D-1	---	---	---	---
CeD---------- Casco-Rodman	B-1	2.2	2.0	3.0	2.8
CgA, CgB---------- Celina	A-6	3.6	5.4	4.5	5.6
CgB2---------- Celina	A-6	3.5	5.1	4.2	5.4
ChA---------- Chavies	A-1	3.6	5.0	3.5	5.6

See footnote at end of table.

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
CmA, CmB---------- Cidermill	A-1	3.6	4.6	4.5	5.6
Cp---------- Clifty	A-5	3.6	5.4	4.8	5.6
CrA, CrB---------- Coolville	A-6	3.6	4.0	4.4	5.6
CrC2---------- Coolville	A-6	3.2	4.0	3.9	5.0
CvA, CvB---------- Crosby	C-1	3.6	3.4	4.4	5.6
CwC2---------- Cruze	A-6	4.2	3.5	3.2	4.6
CwD---------- Cruze	A-6	4.2	3.5	3.0	4.6
CwE---------- Cruze	F-6	---	---	---	---
DAM. Dam					
EeA, EeB---------- Eldean	B-1	4.0	4.5	4.0	5.6
EeC2---------- Eldean	B-1	3.5	3.8	3.8	5.3
EgA, EgB---------- Eldean	B-1	4.0	4.5	4.0	5.6
EgC2---------- Eldean	B-1	3.5	3.8	3.8	5.3
ErD---------- Ernest	F-3	3.5	3.0	2.5	5.3
EuA---------- Euclid	C-1	4.2	---	4.3	6.2
FhA, FhB---------- Fitchville	C-1	4.3	---	4.3	6.2
FnB---------- Fox	A-1	3.6	5.7	4.3	5.6
FnC2---------- Fox	A-1	3.2	5.7	4.3	5.6
Ge, Gf---------- Gessie	A-5	3.1	3.5	4.3	8.0
GgC2---------- Gilpin	F-1	3.0	4.9	4.6	5.0

See footnote at end of table.

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
GhC----------		3.0	4.9	4.6	5.0
Gilpin----------	F-1				
Tilsit----------	F-3				
GnA, GnB----------	A-6	3.6	4.5	4.4	5.6
Glenford					
HaB----------	F-3	3.0	4.5	4.4	4.8
Haubstadt					
HaC2----------	F-3	2.7	4.0	3.3	3.3
Haubstadt					
Hd----------	A-5	3.6	4.1	4.4	8.2
Haymond					
HeA----------	C-1	3.6	---	4.1	4.0
Henshaw					
HkD2----------	A-1	3.6	2.5	4.3	5.6
Hickory					
HkE2----------	A-3	---	---	---	---
Hickory					
Ht----------	A-5	3.6	7.0	4.8	5.6
Huntington					
KaA, KaB----------	A-1	3.6	5.5	4.5	5.2
Kendallville					
KeC2----------		3.4	4.6	3.9	4.5
Kendallville--------	A-1				
Eldean----------	B-1				
KeD2----------		3.7	4.1	3.5	4.4
Kendallville--------	A-1				
Eldean----------	B-1				
KeE2----------		---	---	---	---
Kendallville--------	A-3				
Eldean----------	B-2				
Kn----------	A-5	3.6	7.0	4.8	5.6
Kinn					
Ko, Kp----------	C-1	4.1	4.4	5.2	6.2
Kokomo					
LfC2----------	F-1	3.5	5.0	2.5	3.0
Latham					
LfD2----------	F-1	3.0	4.6	2.5	3.0
Latham					
LfE----------	F-2	---	---	---	---
Latham					

See footnote at end of table.

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
LgD---------- Latham---------- Wharton----------	F-1 A-2	3.0	4.1	3.6	3.8
LrB---------- Libre	A-6	4.1	6.0	4.4	5.6
LrC2---------- Libre	A-6	3.3	5.5	4.0	5.0
MaB---------- Markland	F-5	2.8	3.8	3.0	4.8
MbC2---------- Markland	F-5	2.3	3.0	2.3	3.9
MbD2---------- Markland	F-5	2.3	2.4	1.8	3.6
MbE2---------- Markland	F-6	---	---	---	---
McA---------- Martinsville	A-1	3.6	5.6	4.0	5.6
MdA---------- McGary	C-2	4.0	3.3	4.8	6.6
MdB---------- McGary	C-2	4.0	3.3	4.4	5.6
MeC2---------- Mentor	A-6	3.3	4.2	4.0	5.0
MeD2---------- Mentor	A-6	3.0	3.7	3.2	4.6
MfA---------- Mentor	A-6	3.6	4.5	4.0	5.6
MgA, MgB---------- Mentor	A-6	3.6	6.0	4.4	5.6
MhB---------- Miamian	A-1	3.6	6.0	4.4	5.6
MhB2---------- Miamian	A-1	3.4	5.8	4.2	5.4
MhC2---------- Miamian	A-1	3.2	5.3	3.9	5.0
MhD2---------- Miamian	A-1	3.0	4.8	3.5	4.5
MhE---------- Miamian	A-3	---	---	---	---

See footnote at end of table.

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
MmC2---------- Miamian	A-1	3.2	5.3	3.5	5.0
MmD2---------- Miamian	B-1	3.2	4.8	3.2	4.5
MnB----------		3.2	4.7	3.8	4.9
Miamian----------	A-1				
Lewisburg----------	A-6				
MoB---------- Milton	F-1	3.3	5.3	3.8	5.0
MoC2---------- Milton	F-1	2.4	4.2	3.0	4.0
MoE2---------- Milton	F-1	---	---	---	---
NeC2---------- Negley	A-1	3.6	5.6	4.4	5.6
NeD2---------- Negley	A-1	3.2	5.0	3.9	5.0
NeE2---------- Negley	A-3	---	---	---	---
NnA, NnB---------- Nineveh	A-1	3.6	5.6	4.4	5.6
ObA---------- Ockley	A-1	3.9	6.1	4.7	6.1
ObB---------- Ockley	A-1	3.9	6.0	4.6	6.0
OmB---------- Omulga	F-3	3.0	4.8	3.5	4.8
OmC2---------- Omulga	F-3	2.3	3.8	2.7	3.8
Or---------- Orrville	C-3	3.4	---	3.5	4.5
OwB---------- Otwell	F-3	3.0	4.4	3.5	4.8
Pc---------- Patton	C-1	4.3	---	5.2	6.3
Pg---------- Peoga	C-1	3.6	---	3.0	5.6
PkA, PkB---------- Pike	A-6	3.6	5.3	4.4	5.6
Pn. Pits, gravel					

See footnote at end of table.

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
Po. Pits, quarry					
Pp Pope	A-5	3.6	5.3	4.4	5.3
PtB Princeton	A-1	3.6	5.6	4.4	5.6
PtC Princeton	A-1	3.6	4.6	4.3	5.2
PtD Princeton	A-1	2.6	3.8	3.0	3.8
RbA, RbB Rainsboro	F-3	3.0	4.8	4.5	4.8
RbC2 Rainsboro	F-3	3.0	4.3	3.3	4.3
RcF:					
Rigley	H-1	---	---	---	---
Rock outcrop.					
RdD2 Rodman	B-1	2.8	---	3.5	3.3
RdE2 Rodman	B-2	---	---	---	---
Rn Ross	A-5	3.6	5.6	4.8	5.6
Ro Rossburg	A-1	3.6	6.5	4.8	5.6
RpA, RpB Rossmoyne	F-3	3.6	5.0	4.4	5.6
RpC2 Rossmoyne	F-3	3.4	4.3	4.2	5.3
RsB		3.6	5.2	4.4	5.6
Rossmoyne	F-3				
Cana	A-6				
RsC2		3.4	4.4	4.2	5.3
Rossmoyne	F-3				
Cana	A-6				
SfD Shelocta	A-1	3.2	5.0	3.8	5.0
SgF Shelocta-Brownsville	H-1	---	---	---	---

See footnote at end of table.

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
ShE----------		---	---	---	---
Shelocta----------	A-3				
Cruze----------	A-3				
Weikert----------	E-2				
SkE----------	A-3	---	---	---	---
Shelocta-Rigley					
Sp----------	B-3	3.0	3.0	3.4	4.8
Skidmore					
St----------	C-3	4.3	---	5.0	6.0
Sloan					
SuB----------	A-1	3.5	3.0	3.0	5.5
Spargus					
Sv----------	A-5	3.0	3.5	3.6	5.5
Stonelick					
Sw----------	A-5	3.6	4.3	4.0	5.6
Stonelick					
TbA----------	C-1	4.2	---	4.4	6.0
Taggart					
ThC3----------	B-1	2.5	3.2	3.0	3.5
Thrifton					
ThD3----------	B-1	2.5	3.0	2.8	3.2
Thrifton					
ThE3----------	B-2	---	---	---	---
Thrifton					
TnA----------	F-3	3.0	4.8	4.0	4.8
Tilsit					
To----------	A-5	3.6	4.8	4.0	5.6
Tioga					
TyA----------	C-1	3.6	4.0	4.5	5.6
Tyler					
Ud.					
Udorthents					
W.					
Water					
WcA----------	A-1	3.6	3.3	4.3	5.6
Warsaw					
Wk----------	C-1	3.2	4.6	4.2	4.6
Westland					
WtB----------	A-6	2.5	---	4.6	4.6
Wyatt					

See footnote at end of table.

Table 9.--Pasture and Hayland Suitability Groups and Yields per Acre of Hay and Pasture--Continued

Map symbol and soil name	Pasture and hayland suitability group	Kentucky bluegrass	Orchard-grass-alfalfa hay	Orchard-grass-red clover hay	Tall fescue
		AUM*	Tons	Tons	AUM*
WyC2---------- Wyatt	A-6	2.5	---	4.3	4.3
WyD2---------- Wyatt	A-6	2.1	---	4.0	4.0

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 10.--Windbreaks and Environmental Plantings

(Only the soils that are suitable for windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
AcC2:					
Alexandria	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
AcD2:					
Alexandria	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
AcE2:					
Alexandria	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
AeE2:					
Alexandria	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Fox	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
AvA:					
Avonburg	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
AvB:					
Avonburg	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
BeD:					
Berks	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
BeE:					
Berks	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
BgC:					
Berks	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
Tarhollow	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CaB:					
Cana	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CaC2:					
Cana	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CaD2:					
Cana	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CaE2:					
Cana	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
Cd:					
Carlisle	Common ninebark, sargent crabapple, silky dogwood	American cranberrybush, common lilac, southern arrowwood	Nannyberry, Black Hills spruce	Norway spruce, eastern white pine, green ash	Imperial Carolina poplar
CeD:					
Casco	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
Rodman	Siberian peashrub, gray dogwood, silky dogwood	Washington hawthorn, eastern redcedar, radiant crabapple	Jack pine, Virginia pine, black locust	---	---
CgA:					
Celina	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
CgB:					
Celina	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
CgB2:					
Celina	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
ChA:					
Chavies	---	American cranberrybush	Washington hawthorn, eastern redcedar, northern whitecedar, osageorange	Austrian pine, red pine, Norway spruce	Eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CmA:					
Cidermill	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
CmB:					
Cidermill	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Cp:					
Clifty	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
CrA:					
Coolville	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CrB:					
Coolville	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CrC2:					
Coolville	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CvA:					
Crosby	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
CvB:					
Crosby	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CwC2:					
Cruze	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CwD:					
Cruze	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
CwE:					
Cruze	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
EeA:					
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
EeB:					
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
EeC2:					
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
EgA:					
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
EgB:					
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
EgC2:					
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
ErD:					
Ernest	American cranberrybush	Southern arrowwood	Washington hawthorn, common hackberry, eastern redcedar, osageorange, Austrian pine	Eastern white pine, pin oak	---
EuA:					
Euclid	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
FhA:					
Fitchville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
FhB:					
Fitchville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
FnB:					
Fox	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
FnC2:					
Fox	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
Ge:					
Gessie	Nannyberry	Siberian peashrub	Washington hawthorn, eastern redcedar, northern whitecedar, white spruce, green ash, osageorange	Black willow	Eastern cottonwood
Gf:					
Gessie	Nannyberry	Siberian peashrub	Washington hawthorn, eastern redcedar, northern whitecedar, white spruce, green ash, osageorange	Black willow	Eastern cottonwood
GgC2:					
Gilpin	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
GhC:					
Gilpin	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
Tilsit	American cranberrybush	Southern arrowwood	Washington hawthorn, common hackberry, eastern redcedar, osageorange, Austrian pine	Eastern white pine, pin oak	---
GnA:					
Glenford	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
GnB:					
Glenford	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
HaB:					
Haubstadt	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
HaC2:					
Haubstadt	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
Hd:					
Haymond	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
HeA:					
Henshaw	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
HkD2:					
Hickory	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
HkE2:					
Hickory	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Ht:					
Huntington	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
KaA:					
Kendallville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
KaB:					
Kendallville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
KeC2:					
Kendallville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
KeD2:					
Kendallville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
KeE2:					
Kendallville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Eldean	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
Kn:					
Kinn	Nannyberry	Siberian peashrub	Washington hawthorn, eastern redcedar, northern whitecedar, white spruce, green ash, osageorange	Black willow	Eastern cottonwood
Ko:					
Kokomo	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, white fir, northern whitecedar, Austrian pine	Norway spruce, eastern white pine	Pin oak
Kp:					
Kokomo	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, white fir, northern whitecedar, Austrian pine	Norway spruce, eastern white pine	Pin oak
LfC2:					
Latham	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
LfD2:					
Latham	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
LfE:					
Latham	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
LgD:					
Latham	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
Wharton	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
LrB:					
Libre	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
LrC2:					
Libre	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MaB:					
Markland	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
MbC2:					
Markland	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
MbD2:					
Markland	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MbE2:					
Markland	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
McA:					
Martinsville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MdA:					
McGary	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
MdB:					
McGary	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
MeC2:					
Mentor	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MeD2:					
Mentor	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MfA:					
Mentor	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MgA:					
Mentor	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MgB:					
Mentor	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MhB:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MhB2:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MhC2:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MhD2:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MhE:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
MmC2:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MmD2:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
MnB:					
Miamian	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Lewisburg	Siberian peashrub	Washington hawthorn, Russian-olive, eastern redcedar, jack pine, osageorange	Northern catalpa, honeylocust	---	---
MoB:					
Milton	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
MoC2:					
Milton	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
MoE2:					
Milton	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
NeC2:					
Negley	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
NeD2:					
Negley	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
NeE2:					
Negley	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
NnA:					
Nineveh	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
NnB:					
Nineveh	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
ObA:					
Ockley	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
ObB:					
Ockley	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
OmB:					
Omulga	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
OmC2:					
Omulga	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
Or:					
Orrville	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
OwB:					
Otwell	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
Pc:					
Patton	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, white fir, northern whitecedar, Austrian pine	Norway spruce, eastern white pine	Pin oak
Pg:					
Peoga	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, white fir, northern whitecedar, Austrian pine	Norway spruce, eastern white pine	Pin oak
PkA:					
Pike	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
PkB:					
Pike	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
Pp:					
Pope	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
PtB:					
Princeton	---	American cranberrybush	Washington hawthorn, eastern redcedar, northern whitecedar, osageorange	Austrian pine, red pine, Norway spruce	Eastern white pine
PtC:					
Princeton	---	American cranberrybush	Washington hawthorn, eastern redcedar, northern whitecedar, osageorange	Austrian pine, red pine, Norway spruce	Eastern white pine
PtD:					
Princeton	---	American cranberrybush	Washington hawthorn, eastern redcedar, northern whitecedar, osageorange	Austrian pine, red pine, Norway spruce	Eastern white pine
RbA:					
Rainsboro	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
RbB:					
Rainsboro	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
RbC2:					
Rainsboro	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
RcF:					
Rigley	---	American cranberrybush	Washington hawthorn, eastern redcedar, northern whitecedar, osageorange	Austrian pine, red pine, Norway spruce	Eastern white pine
Rock outcrop.					
RdD2:					
Rodman	Siberian peashrub, gray dogwood, silky dogwood	Washington hawthorn, eastern redcedar, radiant crabapple	Jack pine, Virginia pine, black locust	---	---
RdE2:					
Rodman	Siberian peashrub, gray dogwood, silky dogwood	Washington hawthorn, eastern redcedar, radiant crabapple	Jack pine, Virginia pine, black locust	---	---
Rn:					
Ross	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Ro:					
Rossburg	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
RpA:					
Rossmoyne	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
RpB:					
Rossmoyne	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
RpC2:					
Rossmoyne	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
RsB:					
Rossmoyne	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
Cana	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
RsC2:					
Rossmoyne	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
Cana	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
SfD:					
Shelocta	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
SgF:					
Shelocta	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
SgF:					
Brownsville	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
ShE:					
Shelocta	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Cruze	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
Weikert	American hazelnut, flowering quince	Forsythia, blackhaw, cutleaf staghorn sumac	Russian-olive, Austrian pine, jack pine	Red pine, scarlet oak, Virginia pine	---
SkE:					
Shelocta	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Rigley	---	American cranberrybush	Washington hawthorn, eastern redcedar, northern whitecedar, osageorange	Austrian pine, red pine, Norway spruce	Eastern white pine
Sp:					
Skidmore	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
St:					
Sloan	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, white fir, northern whitecedar, Austrian pine	Norway spruce, eastern white pine	Pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
SuB:					
Spargus	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
Sv:					
Stonelick	---	Siberian peashrub	Washington hawthorn, nannyberry, eastern redcedar, northern whitecedar, white spruce, green ash, osageorange	Black willow	---
Sw:					
Stonelick	---	Siberian peashrub	Washington hawthorn, nannyberry, eastern redcedar, northern whitecedar, white spruce, green ash, osageorange	Black willow	---
TbA:					
Taggart	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
ThC3:					
Thrifton	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
ThD3:					
Thrifton	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
ThE3:					
Thrifton	Silky dogwood	American cranberrybush	Washington hawthorn, northern whitecedar, blue spruce, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
TnA:					
Tilsit	American cranberrybush	Southern arrowwood	Washington hawthorn, common hackberry, eastern redcedar, osageorange, Austrian pine	Eastern white pine, pin oak	---
To:					
Tioga	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, northern whitecedar, white fir	Austrian pine, Norway spruce	Pin oak, eastern white pine
TyA:					
Tyler	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
WcA:					
Warsaw	Siberian peashrub, common lilac	Washington hawthorn, eastern redcedar, radiant crabapple	Austrian pine, jack pine, red pine, eastern white pine	---	---
Wk:					
Westland	Silky dogwood	American cranberrybush	Washington hawthorn, blue spruce, white fir, northern whitecedar, Austrian pine	Norway spruce, eastern white pine	Pin oak
WtB:					
Wyatt	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---
WyC2:					
Wyatt	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
WyD2:					
Wyatt	American cranberrybush	Southern arrowwood	Washington hawthorn, eastern redcedar, green ash, osageorange, Austrian pine	Eastern white pine, pin oak	---

Table 11.--Forestland Productivity

(See text for explanations of terms used in this table.)

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
Aa:				
Adrian	Black willow	---	---	---
	Quaking aspen	56	57	
	Red maple	51	29	
	Silver maple	76	29	
	White ash	51	29	
AcC2:				
Alexandria	Northern red oak	80	57	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	75	57	
	Black cherry	---	---	
AcD2:				
Alexandria	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak, black walnut
	Black walnut	---	---	
	Black cheery	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	75	57	
AcE2:				
Alexandria	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak, black walnut
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	75	57	
AeE2:				
Alexandria	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak, black walnut
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	75	57	
Fox	Northern red oak	80	57	Black locust, eastern white pine, red pine, tuliptree, white ash
	Black cherry	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	---	---	
AvA:				
Avonburg	Northern red oak	75	57	Black oak, eastern white pine, red maple, tuliptree, white ash
	Pin oak	85	72	
	Sweetgum	80	86	
	Tuliptree	85	86	
	White oak	70	57	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
AvB:				
Avonburg	Northern red oak	75	57	Black oak, eastern white pine, red maple, tuliptree, white ash
	Pin oak	85	72	
	Sweetgum	80	86	
	Tuliptree	85	86	
	White oak	70	57	
BeD:				
Berks	Northern red oak	70	57	Japanese larch, Norway spruce, Virginia pine, eastern white pine, red pine
	Black oak	70	57	
	Virginia pine	70	114	
BeE:				
Berks	Northern red oak	70	57	Japanese larch, Norway spruce, Virginia pine, eastern white pine, red pine
	Black oak	70	57	
	Virginia pine	70	114	
BgC:				
Berks	Northern red oak	70	57	Japanese larch, Norway spruce, Virginia pine, eastern white pine, red pine
	Black oak	70	57	
	Virginia pine	70	114	
Tarhollow	Northern red oak	68	57	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Tuliptree	91	86	
	White ash	---	---	
CaB:				
Cana	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
CaC2:				
Cana	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
CaD2:				
Cana	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CaE2:				
Cana	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
Cd:				
Carlisle	Eastern cottonwood	80	86	Black willow, green ash, red maple
	Black cherry	---	---	
	Green ash	---	---	
	Red maple	---	---	
	Swamp white oak	---	---	
	White ash	---	---	
CeD:				
Casco	White oak	70	57	Red pine, eastern white pine, jack pine
	Jack pine	68	100	
	Red pine	78	143	
	Eastern white pine	85	200	
Rodman	Northern red oak	70	57	Eastern white pine, jack pine, red pine
	Eastern white pine	85	200	
	Red pine	75	143	
	White oak	70	57	
CgA:				
Celina	Northern red oak	90	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	110	129	
	White ash	---	---	
	White oak	---	---	
CgB:				
Celina	Northern red oak	90	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	110	129	
	White ash	---	---	
	White oak	---	---	
CgB2:				
Celina	Northern red oak	90	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	110	129	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
ChA:				
Chavies	Northern red oak	80	72	Black walnut, eastern white pine, northern red oak, shortleaf pine, tuliptree, white oak
	Black cherry	---	---	
	Black walnut	---	---	
	Hickory	---	---	
	American sycamore	---	---	
	Red maple	---	---	
	Shortleaf pine	76	114	
	Sugar maple	---	---	
	Tuliptree	93	100	
	White oak	---	---	
CmA:				
Cidermill	Northern red oak	90	72	Norway spruce, Scotch pine, black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	85	72	
CmB:				
Cidermill	Northern red oak	90	72	Norway spruce, Scotch pine, black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	85	72	
Cp:				
Clifty	White oak	64	43	Eastern white pine, northern red oak, shortleaf pine, sweetgum, white ash, white oak
	American sycamore	---	---	
	Virginia pine	---	---	
	Black walnut	---	---	
	Northern red oak	---	---	
	Red maple	---	---	
	Shortleaf pine	76	114	
	Tuliptree	---	---	
	American beech	---	---	
CrA:				
Coolville	Northern red oak	77	57	Eastern white pine, Scotch pine, black walnut, northern red oak, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
CrB:				
Coolville	Northern red oak	77	57	Eastern white pine, Scotch pine, black walnut, northern red oak, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
CrC2:				
Coolville	Northern red oak	77	57	Eastern white pine, Scotch pine, black walnut, northern red oak, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
CvA:				
Crosby	Northern red oak	75	57	American sycamore, eastern white pine, northern red oak, red maple, tuliptree, white ash
	Pin oak	85	72	
	Tuliptree	85	86	
	White oak	75	57	
CvB:				
Crosby	Northern red oak	75	57	American sycamore, eastern white pine, northern red oak, red maple, tuliptree, white ash
	Pin oak	85	72	
	Tuliptree	85	86	
	White oak	75	57	
CwC2:				
Cruze	Northern red oak	77	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
CwD:				
Cruze	Northern red oak	77	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
CwE:				
Cruze	Northern red oak	77	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
DAM.				
Dam				
EeA:				
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
EeB:				
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
EeC2:				
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
EgA:				
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
EgB:				
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
EgC2:				
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
ErD:				
Ernest	Northern red oak	80	57	Japanese larch, Norway spruce, eastern white pine
	Black walnut	---	---	
	Black cherry	80	57	
	Sugar maple	80	57	
	Tuliptree	89	86	
	White ash	80	57	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
EuA:				
Euclid	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Pin oak	86	72	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
FhA:				
Fitchville	Northern red oak	80	57	Norway spruce, Scotch pine, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	Pin oak	90	72	
	Sugar maple	---	---	
	Tuliptree	---	---	
FhB:				
Fitchville	Northern red oak	80	57	Norway spruce, Scotch pine, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	Pin oak	90	72	
	Sugar maple	---	---	
	Tuliptree	---	---	
FnB:				
Fox	Northern red oak	80	57	Black locust, eastern white pine, red pine, tuliptree, white ash
	Black cherry	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	---	---	
FnC2:				
Fox	Northern red oak	80	57	Black locust, eastern white pine, red pine, tuliptree, white ash
	Black cherry	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	---	---	
Ge:				
Gessie	Northern red oak	85	75	Black locust, black walnut, eastern cottonwood, eastern white pine, tuliptree
	Tuliptree	100	114	
Gf:				
Gessie	Northern red oak	85	75	Black locust, black walnut, eastern cottonwood, eastern white pine, tuliptree
	Tuliptree	100	114	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
GgC2:				
Gilpin	Northern red oak	80	57	Japanese larch, Virginia pine, black cherry, eastern white pine, tuliptree
	Tuliptree	95	100	
GhC:				
Gilpin	Northern red oak	80	57	Japanese larch, Virginia pine, black cherry, eastern white pine, tuliptree
	Tuliptree	95	100	
Tilsit	Black oak	74	57	Eastern white pine, shortleaf pine, tuliptree, white oak
	Virginia pine	73	114	
	Hickory	---	---	
	Pitch pine	67	---	
	Red maple	---	---	
	Scarlet oak	74	57	
	Shortleaf pine	72	114	
	Southern red oak	65	43	
	Tuliptree	90	86	
	White oak	68	57	
GnA:				
Glenford	Northern red oak	86	72	Norway spruce, Scotch pine, blue spruce, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	96	100	
	White ash	---	---	
	White oak	---	---	
GnB:				
Glenford	Northern red oak	86	72	Norway spruce, Scotch pine, blue spruce, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	96	100	
	White ash	---	---	
	White oak	---	---	
HaB:				
Haubstadt	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, red pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
HaC2:				
Haubstadt	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, red pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	---	---	
Hd:				
Haymond	White oak	90	72	Black cherry, black locust, black walnut, eastern white pine, northern red oak, tuliptree, white ash, white oak
	Tuliptree	100	114	
	Black walnut	70	---	
HeA:				
Henshaw	Pin oak	91	86	Eastern cottonwood, eastern white pine, green ash, loblolly pine, sweetgum, tuliptree
	Common hackberry	---	---	
	Green ash	---	---	
	American sycamore	---	---	
	Red maple	---	---	
	Sweetgum	95	114	
	White oak	---	---	
HkD2:				
Hickory	Northern red oak	85	72	Black walnut, eastern white pine, red pine, sugar maple, tuliptree, white oak
	Black oak	---	---	
	Green ash	---	---	
	Bitternut hickory	---	---	
	Tuliptree	95	100	
	White oak	85	72	
HkE2:				
Hickory	Northern red oak	85	72	Black walnut, eastern white pine, red pine, sugar maple, tuliptree, white oak
	Black oak	---	---	
	Green ash	---	---	
	Bitternut hickory	---	---	
	Tuliptree	95	100	
	White oak	85	72	
Ht:				
Huntington	Northern red oak	85	57	Black locust, black walnut, eastern white pine, tuliptree
	Tuliptree	95	100	
KaA:				
Kendallville	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
KaB:				
Kendallville	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
KeC2:				
Kendallville	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
KeD2:				
Kendallville	Northern red oak	80	57	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
KeE2:				
Kendallville	Northern red oak	80	57	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
KeE2:				
Eldean	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black oak	80	57	
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	80	57	
Kn:				
Kinn	Northern red oak	80	57	Black walnut, eastern white pine, tuliptree
	Black cherry	---	---	
	Pin oak	86	72	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
Ko:				
Kokomo	Northern red oak	75	57	Norway spruce, baldcypress, eastern white pine, red maple, sweetgum, white ash
	Pin oak	85	72	
	Sweetgum	90	100	
	White oak	75	57	
Kp:				
Kokomo	Northern red oak	75	57	Norway spruce, baldcypress, eastern white pine, red maple, sweetgum, white ash
	Pin oak	85	72	
	Sweetgum	90	100	
	White oak	75	57	
LfC2:				
Latham	Northern red oak	63	43	Virginia pine, eastern white pine, northern red oak, white ash, white oak
	Black oak	---	---	
	Virginia pine	---	---	
	Shortleaf pine	---	---	
	White oak	---	---	
LfD2:				
Latham	Northern red oak	68	57	Virginia pine, eastern white pine, northern red oak, white ash, white oak
	Black oak	---	---	
	Virginia pine	---	---	
	Shortleaf pine	---	---	
	White oak	---	---	
LfE:				
Latham	Northern red oak	68	57	Virginia pine, eastern white pine, northern red oak, white ash, white oak
	Black oak	---	---	
	Virginia pine	---	---	
	Shortleaf pine	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
LgD:				
Latham	Northern red oak	68	57	Virginia pine, eastern white pine, northern red oak, white ash, white oak
	Black oak	---	---	
	Virginia pine	---	---	
	Shortleaf pine	---	---	
	White oak	---	---	
Wharton	Northern red oak	77	57	Black walnut, eastern white pine, northern red oak, shortleaf pine, tuliptree, white ash, white oak
	Cucumbertree	---	---	
	Red maple	81	---	
	Scarlet oak	80	57	
	Shortleaf pine	77	129	
	Tuliptree	99	100	
	White oak	77	57	
LrB:				
Libre	White oak	90	72	American sycamore, black cherry, black locust, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
LrC2:				
Libre	White oak	90	72	Black walnut, green ash, northern red oak, tuliptree, white ash, eastern white pine
	Tuliptree	98	100	
	Sweetgum	76	72	
MaB:				
Markland	White oak	75	57	Virginia pine, black locust, black oak, eastern white pine, northern red oak, red maple, red pine, tuliptree, white ash, white oak
	Tuliptree	105	114	
	Red pine	84	172	
MbC2:				
Markland	White oak	75	57	Virginia pine, black locust, black oak, eastern white pine, northern red oak, red maple, red pine, tuliptree, white ash, white oak
	Tuliptree	105	114	
	Red pine	84	172	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
MbD2:				
Markland	White oak	75	57	Virginia pine, black locust, black oak, eastern white pine, northern red oak, red maple, red pine, tuliptree, white ash, white oak
	Tuliptree	105	114	
	Red pine	84	172	
MbE2:				
Markland	White oak	75	57	Virginia pine, black locust, black oak, eastern white pine, northern red oak, red maple, red pine, tuliptree, white ash, white oak
	Tuliptree	105	114	
	Red pine	84	172	
McA:				
Martinsville	White oak	90	72	Black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
MdA:				
McGary	Pin oak	85	72	American sycamore, baldcypress, bur oak, eastern cottonwood, green ash, pin oak, red maple, swamp white oak, sweetgum
	Sweetgum	80	86	
	Tuliptree	85	86	
	White oak	70	57	
MdB:				
McGary	Pin oak	85	72	American sycamore, baldcypress, bur oak, eastern cottonwood, green ash, pin oak, red maple, swamp white oak, sweetgum
	Sweetgum	80	86	
	Tuliptree	85	86	
	White oak	70	57	
MeC2:				
Mentor	Northern red oak	86	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
MeD2:				
Mentor	Northern red oak	86	72	Black walnut,
	Black walnut	---	---	eastern white
	Black cherry	---	---	pine, northern red
	Sugar maple	---	---	oak, red pine,
	Tuliptree	---	---	tuliptree, white
	White ash	---	---	ash, white oak
	White oak	---	---	
MfA:				
Mentor	Northern red oak	86	72	Black walnut,
	Black walnut	---	---	eastern white
	Black cherry	---	---	pine, northern red
	Sugar maple	---	---	oak, red pine,
	Tuliptree	---	---	tuliptree, white
	White ash	---	---	ash, white oak
	White oak	---	---	
MgA:				
Mentor	Northern red oak	86	72	Black cherry, black
	Black walnut	---	---	locust, black
	Black cherry	---	---	walnut, eastern
	Sugar maple	---	---	white pine, green
	Tuliptree	---	---	ash, northern red
	White ash	---	---	oak, red pine,
	White oak	---	---	tuliptree, white
				ash, white oak
MgB:				
Mentor	Northern red oak	86	72	Black cherry, black
	Black walnut	---	---	locust, black
	Black cherry	---	---	walnut, eastern
	Sugar maple	---	---	white pine, green
	Tuliptree	---	---	ash, northern red
	White ash	---	---	oak, red pine,
	White oak	---	---	tuliptree, white
				ash, white oak
MhB:				
Miamian	Northern red oak	87	72	Black walnut,
	Black walnut	---	---	eastern white
	Black cherry	---	---	pine, northern red
	Sugar maple	---	---	oak, red pine,
	Tuliptree	---	---	tuliptree, white
	White ash	---	---	ash, white oak
	White oak	---	---	
MhB2:				
Miamian	Northern red oak	87	72	Black walnut,
	Black walnut	---	---	eastern white
	Black cherry	---	---	pine, northern red
	Sugar maple	---	---	oak, red pine,
	Tuliptree	---	---	tuliptree, white
	White ash	---	---	ash, white oak
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
MhC2:				
Miamian	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
MhD2:				
Miamian	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
MhE:				
Miamian	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
MmC2:				
Miamian	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
MmD2:				
Miamian	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
MnB:				
Miamian	Northern red oak	87	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
MnB:				
Lewisburg	Northern red oak	80	57	American sycamore, black cherry, black locust, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	75	57	
MoB:				
Milton	Northern red oak	80	57	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
MoC2:				
Milton	Northern red oak	80	57	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
MoE2:				
Milton	Northern red oak	80	57	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
NeC2:				
Negley	Northern red oak	94	72	Black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	99	100	
	White ash	---	---	
	White oak	---	---	
NeD2:				
Negley	Northern red oak	94	72	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak, black walnut
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	99	100	
	White ash	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
NeE2:				
Negley	Northern red oak	94	72	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak, black walnut
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	99	100	
	White ash	---	---	
NnA:				
Nineveh	White oak	90	72	Black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
NnB:				
Nineveh	White oak	90	72	Black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
ObA:				
Ockley	Northern red oak	90	72	Black locust, black oak, black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Sweetgum	76	72	
	Tuliptree	100	114	
	White ash	---	---	
	White oak	90	72	
ObB:				
Ockley	Northern red oak	90	72	Black locust, black oak, black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Sweetgum	76	72	
	Tuliptree	100	114	
	White ash	---	---	
	White oak	90	72	
OmB:				
Omulga	Northern red oak	80	57	Black cherry, black locust, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
OmC2:				
Omulga	Northern red oak	80	57	Black cherry, black locust, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
Or:				
Orrville	Northern red oak	80	57	Norway spruce, Scotch pine, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	Black cherry	---	---	
	Pin oak	85	72	
	Sugar maple	80	57	
	Tuliptree	90	86	
	White ash	---	---	
	White oak	---	---	
OwB:				
Otwell	White oak	65	43	Eastern white pine, red pine, tuliptree, white ash
	Tuliptree	---	---	
	Sugar maple	---	---	
Pc:				
Patton	Northern red oak	75	57	Norway spruce, eastern white pine, red maple, white ash
	Pin oak	85	72	
	White oak	75	57	
Pg:				
Peoga	Pin oak	100	86	American sycamore, eastern cottonwood, green ash, pin oak, red maple, silver maple, swamp white oak, sweetgum
	American beech	90	100	
	Red maple	---	---	
	Swamp white oak	---	---	
	Sweetgum	---	---	
	Tuliptree	75	57	
PkA:				
Pike	White oak	90	72	Black locust, black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
PkB:				
Pike	White oak	90	72	Black locust, black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
Pn.				
Pits, gravel				
Po.				
Pits, quarry				
Pp:				
Pope	White oak	80	57	Black walnut, eastern white pine, northern red oak, shortleaf pine, tuliptree, white ash, white oak
	American beech	---	---	
	American sycamore	---	---	
	Bitternut hickory	---	---	
	Blackgum	---	---	
	Eastern hemlock	---	---	
	Northern red oak	---	---	
	Tuliptree	96	100	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
PtB:				
Princeton	White oak	90	72	Black locust, black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
PtC:				
Princeton	White oak	90	72	Black locust, black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
PtD:				
Princeton	White oak	90	72	Black locust, black walnut, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	98	100	
	Sweetgum	76	72	
RbA:				
Rainsboro	White oak	75	57	Black cherry, black locust, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Northern red oak	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	Black cherry	---	---	
RbB:				
Rainsboro	White oak	75	57	Black cherry, black locust, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Northern red oak	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	Black cherry	---	---	
RbC2:				
Rainsboro	White oak	75	57	Black cherry, black locust, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Northern red oak	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	Black cherry	---	---	
RcF:				
Rigley	White oak	75	57	Eastern white pine, northern red oak, shortleaf pine, tuliptree, white oak
	Black oak	78	57	
	Hickory	---	---	
	Northern red oak	---	---	
	Shortleaf pine	80	129	
	Tuliptree	94	100	
	White oak	75	57	
	American beech	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
RcF:				
Rock outcrop.				
RdD2:				
Rodman	White oak	70	57	Eastern white pine, jack pine, red pine
	Northern red oak	70	57	
	Red pine	75	143	
	Eastern white pine	85	200	
RdE2:				
Rodman	White oak	70	57	Eastern white pine, jack pine, red pine
	Northern red oak	70	57	
	Red pine	75	143	
	Eastern white pine	85	200	
Rn:				
Ross	Northern red oak	86	72	Norway spruce, black walnut, eastern white pine, tuliptree, white ash
	Black walnut	---	---	
	Black cherry	---	---	
	Sugar maple	85	57	
	Tuliptree	96	100	
	White ash	---	---	
	White oak	---	---	
Ro:				
Rossburg	White oak	90	72	Black cherry, black locust, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	Northern red oak	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	Black cherry	---	---	
RpA:				
Rossmoyne	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	61	43	
RpB:				
Rossmoyne	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	61	43	
RpC2:				
Rossmoyne	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	61	43	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
RsB:				
Rossmoyne	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	61	43	
Cana	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
RsC2:				
Rossmoyne	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	White ash	---	---	
	White oak	61	43	
Cana	Northern red oak	80	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
SfD:				
Shelocta	White oak	77	57	Black walnut, eastern white pine, northern red oak, shortleaf pine, tuliptree, white ash, white oak
	Cucumbertree	---	---	
	Red maple	81	---	
	Scarlet oak	80	57	
	Shortleaf pine	77	129	
	Tuliptree	99	100	
	American beech	---	---	
SgF:				
Shelocta	White oak	77	57	Black walnut, eastern white pine, northern red oak, shortleaf pine, tuliptree, white ash, white oak
	Cucumbertree	---	---	
	Red maple	81	---	
	Scarlet oak	80	57	
	Shortleaf pine	77	129	
	Tuliptree	99	100	
	American beech	---	---	
Brownsville	Northern red oak	75	57	Virginia pine, black oak, eastern white pine, red pine, tuliptree, white ash
	Tuliptree	85	86	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
ShE:				
Shelocta	White oak	77	57	Black walnut, eastern white pine, northern red oak, shortleaf pine, tuliptree, white ash, white oak
	Cucumbertree	---	---	
	Red maple	81	---	
	Scarlet oak	80	57	
	Shortleaf pine	77	129	
	Tuliptree	99	100	
	American beech	---	---	
Cruze	Northern red oak	77	57	Eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	Black cherry	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
Weikert	Northern red oak	64	43	Virginia pine, eastern white pine, shortleaf pine
	Virginia pine	60	86	
SkE:				
Shelocta	White oak	77	57	Black walnut, eastern white pine, northern red oak, shortleaf pine, tuliptree, white ash, white oak
	Cucumbertree	---	---	
	Red maple	81	---	
	Scarlet oak	80	57	
	Shortleaf pine	77	129	
	Tuliptree	99	100	
	American beech	---	---	
Rigley	White oak	75	57	Eastern white pine, northern red oak, shortleaf pine, tuliptree, white oak
	Black oak	78	57	
	Hickory	---	---	
	Northern red oak	---	---	
	Shortleaf pine	80	129	
	Tuliptree	94	100	
	American beech	---	---	
Sp:				
Skidmore	White oak	75	57	American sycamore, cherrybark oak, eastern white pine, sweetgum, tuliptree, white ash, white oak
	Black oak	---	---	
	Black walnut	---	---	
	Blackgum	---	---	
	Cherrybark oak	---	---	
	Eastern cottonwood	---	---	
	River birch	---	---	
	Sweetgum	---	---	
	Tuliptree	103	114	
	American sycamore	---	---	
St:				
Sloan	Pin oak	86	72	American sycamore, eastern cottonwood, green ash, pin oak, red maple, silver maple, swamp white oak, sweetgum
	Green ash	---	---	
	Eastern cottonwood	---	---	
	Red maple	---	---	
	Swamp white oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SuB:				
Spargus	Black oak	80	57	Black walnut, eastern white pine, white oak, white ash, tuliptree, Scotch pine
	American sycamore	---	---	
	Black walnut	---	---	
	Blackgum	---	---	
	Cherrybark oak	---	---	
	Eastern cottonwood	---	---	
	River birch	---	---	
	Sweetgum	---	---	
	Tuliptree	103	114	
	White oak	80	57	
Sv:				
Stonelick	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	American sycamore	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
Sw:				
Stonelick	Northern red oak	80	57	Black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	Black walnut	---	---	
	American sycamore	---	---	
	Sugar maple	---	---	
	Tuliptree	95	100	
	White ash	---	---	
	White oak	---	---	
TbA:				
Taggart	Northern red oak	75	57	American sycamore, baldcypress, eastern white pine, red maple, tuliptree, white ash
	Pin oak	85	72	
	Sweetgum	80	86	
	Tuliptree	85	86	
	White oak	75	57	
ThC3:				
Thrifton	Northern red oak	87	72	Eastern white pine, black locust, red pine
	Black walnut	---	---	
	Eastern white pine	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
ThD3:				
Thrifton	Northern red oak	87	72	Eastern white pine, black locust, red pine
	Black walnut	---	---	
	Eastern white pine	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
ThE3:				
Thrifton	Northern red oak	87	72	Eastern white pine, black locust, red pine
	Black walnut	---	---	
	Eastern white pine	---	---	
	Sugar maple	---	---	
	Tuliptree	---	---	
	White ash	---	---	
	White oak	---	---	
TnA:				
Tilsit	Black oak	74	57	Eastern white pine, shortleaf pine, tuliptree, white oak
	Virginia pine	73	114	
	Hickory	---	---	
	Pitch pine	67	---	
	Red maple	---	---	
	Scarlet oak	74	57	
	Shortleaf pine	72	114	
	Southern red oak	65	43	
	Tuliptree	90	86	
	White oak	68	57	
To:				
Tioga	Northern red oak	75	57	European larch, Norway spruce, black walnut, eastern white pine, tuliptree
	Sugar maple	67	43	
	Tuliptree	85	86	
TyA:				
Tyler	Northern red oak	80	57	Virginia pine, black oak, eastern white pine, red pine, tuliptree, white ash
	American sycamore	---	---	
	American beech	---	---	
	Slippery elm	---	---	
	Sugar maple	---	---	
	Tuliptree	100	114	
	White ash	86	114	
	White oak	---	---	
Ud.				
Udorthents				
W.				
Water				
WcA:				
Warsaw	Northern red oak	80	57	Eastern white pine, white oak, black walnut, Scotch pine
	Tuliptree	---	---	
Wk:				
Westland	Pin oak	85	72	Baldcypress, eastern white pine, red maple, sweetgum, white ash
	Sweetgum	90	100	
	White oak	75	57	

Table 11.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
WtB:				
Wyatt	White oak	70	57	American sycamore, Austrian pine, black oak, eastern cottonwood, green ash, pin oak, red maple, tuliptree
	Slippery elm	---	---	
	White ash	---	---	
	Red maple	---	---	
WyC2:				
Wyatt	White oak	70	57	American sycamore, Austrian pine, black oak, eastern cottonwood, green ash, pin oak, red maple, tuliptree
	Slippery elm	---	---	
	White ash	---	---	
	Red maple	---	---	
WyD2:				
Wyatt	White oak	70	57	American sycamore, Austrian pine, black oak, eastern cottonwood, green ash, pin oak, red maple, tuliptree
	Slippery elm	---	---	
	White ash	---	---	
	Red maple	---	---	

Table 12.--Forestland 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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Aa:						
Adrian	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
			Soil reaction	1.00		
AcC2:						
Alexandria	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
AcD2:						
Alexandria	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
AcE2:						
Alexandria	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
AeE2:						
Alexandria	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
Fox	Severe		Moderate		Severe	
	Slope/erodibility	0.68	Lime	0.50	Low strength	1.00
AvA:						
Avonburg	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
AvB:						
Avonburg	Slight		High		Severe	
	Slope/erodibility	0.10	Wetness	1.00	Low strength	1.00
BeD:						
Berks	Moderate		Low		Moderate	
	Slope/erodibility	0.31			Low strength	0.50
BeE:						
Berks	Moderate		Low		Moderate	
	Slope/erodibility	0.55			Low strength	0.50
BgC:						
Berks	Slight		Low		Moderate	
	Slope/erodibility	0.22			Low strength	0.50
Tarhollow	Moderate		Low		Severe	
	Slope/erodibility	0.27			Low strength	1.00
CaB:						
Cana	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
CaC2:						
Cana	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard: Rating class and limiting features	Erosion hazard: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value	Soil rutting hazard: Rating class and limiting features	Soil rutting hazard: Value
CaD2:						
Cana	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
CaE2:						
Cana	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
Cd:						
Carlisle	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
			Soil reaction	1.00		
CeD:						
Casco	Moderate		Low		Moderate	
	Slope/erodibility	0.29			Low strength	0.50
Rodman	Moderate		Low		Severe	
	Slope/erodibility	0.29			Low strength	1.00
CgA:						
Celina	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
CgB:						
Celina	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
CgB2:						
Celina	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
ChA:						
Chavies	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
CmA:						
Cidermill	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
CmB:						
Cidermill	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
Cp:						
Clifty	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
CrA:						
Coolville	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
CrB:						
Coolville	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
CrC2:						
Coolville	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
CvA:						
Crosby	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CvB:						
Crosby	Slight		High		Severe	
	Slope/erodibility	0.10	Wetness	1.00	Low strength	1.00
CwC2:						
Cruze	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
CwD:						
Cruze	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
CwE:						
Cruze	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
EeB:						
Eldean	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
EeC2:						
Eldean	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
EgA:						
Eldean	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
EgB:						
Eldean	Slight		Low		Severe	
	Slope/erodibility	0.08			Low strength	1.00
EgC2:						
Eldean	Slight		Low		Severe	
	Slope/erodibility	0.18			Low strength	1.00
ErD:						
Ernest	Moderate		Low		Severe	
	Slope/erodibility	0.49			Low strength	1.00
EuA:						
Euclid	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
FhA:						
Fitchville	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
FhB:						
Fitchville	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
FnB:						
Fox	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard: Rating class and limiting features	Erosion hazard: Value	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value	Soil rutting hazard: Rating class and limiting features	Soil rutting hazard: Value
FnC2:						
Fox	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
Ge:						
Gessie	Slight		Moderate		Severe	
	Slope/erodibility	0.02	Lime	0.50	Low strength	1.00
			Soil reaction	0.50		
Gf:						
Gessie	Slight		Moderate		Severe	
	Slope/erodibility	0.02	Lime	0.50	Low strength	1.00
			Soil reaction	0.50		
GgC2:						
Gilpin	Slight		Low		Severe	
	Slope/erodibility	0.18			Low strength	1.00
GhC:						
Gilpin	Slight		Low		Severe	
	Slope/erodibility	0.18			Low strength	1.00
Tilsit	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
GnA:						
Glenford	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
GnB:						
Glenford	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
HaB:						
Haubstadt	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
HaC2:						
Haubstadt	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
Hd:						
Haymond	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
HeA:						
Henshaw	Slight		Low		Severe	
	Slope/erodibility	0.05			Low strength	1.00
HkD2:						
Hickory	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
HkE2:						
Hickory	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
Ht:						
Huntington	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KaA:						
Kendallville	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
KaB:						
Kendallville	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
KeC2:						
Kendallville	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
Eldean	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
KeD2:						
Kendallville	Moderate		Low		Severe	
	Slope/erodibility	0.37			Low strength	1.00
Eldean	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
KeE2:						
Kendallville	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
Eldean	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
Kn:						
Kinn	Slight		Moderate		Severe	
	Slope/erodibility	0.02	Soil reaction	0.50	Low strength	1.00
Ko:						
Kokomo	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
Kp:						
Kokomo	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
LfC2:						
Latham	Slight		Moderate		Severe	
	Slope/erodibility	0.22	Soil reaction	0.50	Low strength	1.00
LfD2:						
Latham	Moderate		Moderate		Severe	
	Slope/erodibility	0.39	Soil reaction	0.50	Low strength	1.00
LfE:						
Latham	Severe		Moderate		Severe	
	Slope/erodibility	0.68	Soil reaction	0.50	Low strength	1.00
LgD:						
Latham	Moderate		Moderate		Severe	
	Slope/erodibility	0.49	Soil reaction	0.50	Low strength	1.00
Wharton	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
LrB:						
Libre	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LrC2:						
Libre	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
MaB:						
Markland	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
MbC2:						
Markland	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
MbD2:						
Markland	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
MbE2:						
Markland	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
McA:						
Martinsville	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
MdA:						
McGary	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
MdB:						
McGary	Slight		High		Severe	
	Slope/erodibility	0.10	Wetness	1.00	Low strength	1.00
MeC2:						
Mentor	Slight		Low		Severe	
	Slope/erodibility	0.18			Low strength	1.00
MeD2:						
Mentor	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
MfA:						
Mentor	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
MgA:						
Mentor	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
MgB:						
Mentor	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
MhB:						
Miamian	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
MhB2:						
Miamian	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
MhC2:						
Miamian	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MhD2:						
Miamian	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
MhE:						
Miamian	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
MmC2:						
Miamian	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
MmD2:						
Miamian	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00
MnB:						
Miamian	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
Lewisburg	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
MoB:						
Milton	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
MoC2:						
Milton	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
MoE2:						
Milton	Moderate		Low		Severe	
	Slope/erodibility	0.56			Low strength	1.00
NeC2:						
Negley	Slight		Low		Severe	
	Slope/erodibility	0.18			Low strength	1.00
NeD2:						
Negley	Moderate		Low		Severe	
	Slope/erodibility	0.31			Low strength	1.00
NeE2:						
Negley	Moderate		Low		Severe	
	Slope/erodibility	0.55			Low strength	1.00
NnA:						
Nineveh	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
NnB:						
Nineveh	Slight		Low		Severe	
	Slope/erodibility	0.08			Low strength	1.00
ObA:						
Ockley	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
ObB:						
Ockley	Slight		Low		Severe	
	Slope/erodibility	0.08			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OmB:						
Omulga	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
OmC2:						
Omulga	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
Or:						
Orrville	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
OwB:						
Otwell	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
Pc:						
Patton	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
Pg:						
Peoga	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
PkA:						
Pike	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
PkB:						
Pike	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	Slight		Low		Severe	
	Slope/erodibility	0.05			Low strength	1.00
PtB:						
Princeton	Slight		Low		Severe	
	Slope/erodibility	0.08			Low strength	1.00
PtC:						
Princeton	Slight		Low		Severe	
	Slope/erodibility	0.18			Low strength	1.00
PtD:						
Princeton	Moderate		Low		Severe	
	Slope/erodibility	0.31			Low strength	1.00
RbA:						
Rainsboro	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
RbB:						
Rainsboro	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RbC2:						
Rainsboro	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
RcF:						
Rigley	Very severe		Low		Severe	
	Slope/erodibility	1.00			Low strength	1.00
Rock outcrop	Not rated		Not rated		Not rated	
RdD2:						
Rodman	Moderate		Low		Severe	
	Slope/erodibility	0.31			Low strength	1.00
RdE2:						
Rodman	Moderate		Low		Severe	
	Slope/erodibility	0.55			Low strength	1.00
Rn:						
Ross	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
Ro:						
Rossburg	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
RpA:						
Rossmoyne	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
RpB:						
Rossmoyne	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
RpC2:						
Rossmoyne	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
RsB:						
Rossmoyne	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
Cana	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
RsC2:						
Rossmoyne	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
Cana	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
SfD:						
Shelocta	Moderate		Low		Severe	
	Slope/erodibility	0.31			Low strength	1.00
SgF:						
Shelocta	Very severe		Low		Severe	
	Slope/erodibility	1.00			Low strength	1.00
Brownsville	Very severe		Low		Severe	
	Slope/erodibility	1.00			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ShE:						
Shelocta	Moderate		Low		Severe	
	Slope/erodibility	0.55			Low strength	1.00
Cruze	Severe		Low		Severe	
	Slope/erodibility	0.68			Low strength	1.00
Weikert	Moderate		Low		Severe	
	Slope/erodibility	0.55			Low strength	1.00
SkE:						
Shelocta	Severe		Low		Severe	
	Slope/erodibility	0.65			Low strength	1.00
Rigley	Severe		Low		Slight	
	Slope/erodibility	0.65				
Sp:						
Skidmore	Slight		Low		Slight	
	Slope/erodibility	0.02			Low strength	0.10
St:						
Sloan	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
SuB:						
Spargus	Slight		Low		Severe	
	Slope/erodibility	0.08			Low strength	1.00
Sv:						
Stonelick	Slight		Moderate		Severe	
	Slope/erodibility	0.02	Lime	0.50	Low strength	1.00
			Soil reaction	0.50		
Sw:						
Stonelick	Slight		Moderate		Severe	
	Slope/erodibility	0.02	Lime	0.50	Low strength	1.00
			Soil reaction	0.50		
TbA:						
Taggart	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
ThC3:						
Thrifton	Slight		Moderate		Severe	
	Slope/erodibility	0.18	Soil reaction	0.50	Low strength	1.00
ThD3:						
Thrifton	Moderate		Moderate		Severe	
	Slope/erodibility	0.31	Soil reaction	0.50	Low strength	1.00
ThE3:						
Thrifton	Moderate		Moderate		Severe	
	Slope/erodibility	0.55	Soil reaction	0.50	Low strength	1.00
TnA:						
Tilsit	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
To:						
Tioga	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00

Table 12.--Forestland Management--Continued

Map symbol and soil name	Erosion hazard		Potential for seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TyA:						
Tyler	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
Ud:						
Udorthents	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Slight		Low		Severe	
	Slope/erodibility	0.02			Low strength	1.00
Wk:						
Westland	Slight		High		Severe	
	Slope/erodibility	0.02	Wetness	1.00	Low strength	1.00
WtB:						
Wyatt	Slight		Low		Severe	
	Slope/erodibility	0.10			Low strength	1.00
WyC2:						
Wyatt	Slight		Low		Severe	
	Slope/erodibility	0.22			Low strength	1.00
WyD2:						
Wyatt	Moderate		Low		Severe	
	Slope/erodibility	0.39			Low strength	1.00

Table 13.--Forestland Harvesting Activities

(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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Aa:						
Adrian	Severe		Poorly suited		Poorly suited	
	Low strength	1.00	Ponding	1.00	Low strength	1.00
			Low strength	1.00		
			Wetness	1.00		
AcC2:						
Alexandria	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
AcD2:						
Alexandria	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
AcE2:						
Alexandria	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
AeE2:						
Alexandria	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
Fox	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
AvA:						
Avonburg	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		
AvB:						
Avonburg	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		
BeD:						
Berks	Moderate		Poorly suited		Well suited	
	Restrictive layer	0.50	Slope	1.00		
	Slope	0.50				
BeE:						
Berks	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Slope	0.50
	Restrictive layer	0.50				

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BgC:						
Berks	Moderate		Moderately suited		Well suited	
	Restrictive layer	0.50	Slope	0.50		
Tarhollow	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
CaB:						
Cana	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
CaC2:						
Cana	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
CaD2:						
Cana	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
CaE2:						
Cana	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
Cd:						
Carlisle	Severe		Poorly suited		Poorly suited	
	Low strength	1.00	Ponding	1.00	Low strength	1.00
			Low strength	1.00		
			Wetness	1.00		
CeD:						
Casco	Moderate		Poorly suited		Well suited	
	Slope	0.50	Slope	1.00		
	Sand/slope	0.50				
Rodman	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Sand/slope	0.50	Low strength	0.50		
CgA:						
Celina	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
CgB:						
Celina	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
CgB2:						
Celina	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
ChA:						
Chavies	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CmA:						
Cidermill	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
CmB:						
Cidermill	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
Cp:						
Clifty	Moderate		Moderately suited		Moderately suited	
	Flooding	0.50	Flooding	0.50	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
CrA:						
Coolville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
CrB:						
Coolville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
CrC2:						
Coolville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
CvA:						
Crosby	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		
CvB:						
Crosby	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		
CwC2:						
Cruze	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
CwD:						
Cruze	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
CwE:						
Cruze	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EeB:						
Eldean	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
EeC2:						
Eldean	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
EgA:						
Eldean	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
EgB:						
Eldean	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
EgC2:						
Eldean	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
ErD:						
Ernest	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
EuA:						
Euclid	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Wetness	0.50		
FhA:						
Fitchville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Wetness	0.50		
FhB:						
Fitchville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Wetness	0.50		
FnB:						
Fox	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
FnC2:						
Fox	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
Ge:						
Gessie	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
Gf:						
Gessie	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GgC2:						
Gilpin	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
	Restrictive layer	0.50	Low strength	0.50		
GhC:						
Gilpin	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
	Restrictive layer	0.50	Low strength	0.50		
Tilsit	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
GnA:						
Glenford	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
GnB:						
Glenford	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
HaB:						
Haubstadt	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
HaC2:						
Haubstadt	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
Hd:						
Haymond	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
HeA:						
Henshaw	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Wetness	0.50		
HkD2:						
Hickory	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
HkE2:						
Hickory	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
Ht:						
Huntington	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
KaA:						
Kendallville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KaB:						
Kendallville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
KeC2:						
Kendallville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
Eldean	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
KeD2:						
Kendallville	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
Eldean	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
KeE2:						
Kendallville	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
Eldean	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
Kn:						
Kinn	Moderate		Moderately suited		Moderately suited	
	Flooding	0.50	Flooding	0.50	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
	Stickiness/slope	0.50				
Ko:						
Kokomo	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Ponding	1.00	Low strength	0.50
			Wetness	1.00		
			Low strength	0.50		
Kp:						
Kokomo	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Ponding	1.00	Low strength	0.50
			Wetness	1.00		
			Low strength	0.50		
LfC2:						
Latham	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
LfD2:						
Latham	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Stickiness/slope	0.50	Low strength	0.50		
	Low strength	0.50				

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LfE:						
Latham	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Stickiness/slope	0.50	Low strength	0.50	Slope	0.50
	Low strength	0.50				
LgD:						
Latham	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
	Stickiness/slope	0.50				
Wharton	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
	Restrictive layer	0.50				
LrB:						
Libre	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
	Stickiness/slope	0.50				
LrC2:						
Libre	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
	Stickiness/slope	0.50	Low strength	0.50		
MaB:						
Markland	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
MbC2:						
Markland	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
MbD2:						
Markland	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
MbE2:						
Markland	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
McA:						
Martinsville	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
MdA:						
McGary	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		
MdB:						
McGary	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MeC2:						
Mentor	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
MeD2:						
Mentor	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
MfA:						
Mentor	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
MgA:						
Mentor	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
MgB:						
Mentor	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
MhB:						
Miamian	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
MhB2:						
Miamian	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
MhC2:						
Miamian	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
MhD2:						
Miamian	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
MhE:						
Miamian	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
MmC2:						
Miamian	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
MmD2:						
Miamian	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
MnB:						
Miamian	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
Lewisburg	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoB:						
Milton	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
	Restrictive layer	0.50				
MoC2:						
Milton	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
	Restrictive layer	0.50	Low strength	0.50		
MoE2:						
Milton	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Restrictive layer	0.50	Low strength	0.50	Slope	0.50
	Low strength	0.50				
NeC2:						
Negley	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
NeD2:						
Negley	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
			Low strength	0.50		
NeE2:						
Negley	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
NnA:						
Nineveh	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
NnB:						
Nineveh	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
ObA:						
Ockley	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
ObB:						
Ockley	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
OmB:						
Omulga	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
OmC2:						
Omulga	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Or:						
Orrville	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
			Wetness	0.50		
OwB:						
Otwell	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
Pc:						
Patton	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Ponding	0.50		
			Low strength	0.50		
Pg:						
Peoga	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Wetness	1.00	Low strength	0.50
			Ponding	0.50		
			Low strength	0.50		
PkA:						
Pike	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
PkB:						
Pike	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
PtB:						
Princeton	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
PtC:						
Princeton	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
PtD:						
Princeton	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
RbA:						
Rainsboro	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RbB:						
Rainsboro	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
RbC2:						
Rainsboro	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
RcF:						
Rigley	Severe		Poorly suited		Poorly suited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Low strength	0.50	Low strength	0.50
Rock outcrop	Not rated		Not rated		Not rated	
RdD2:						
Rodman	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Sand/slope	0.50	Low strength	0.50		
RdE2:						
Rodman	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Sand/slope	0.50	Low strength	0.50	Slope	0.50
Rn:						
Ross	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
Ro:						
Rossburg	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
RpA:						
Rossmoyne	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Wetness	0.50		
RpB:						
Rossmoyne	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Wetness	0.50		
RpC2:						
Rossmoyne	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
			Wetness	0.50		
RsB:						
Rossmoyne	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Wetness	0.50		
Cana	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RsC2:						
Rossmoyne	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
			Wetness	0.50		
Cana	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
SfD:						
Shelocta	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Restrictive layer	0.50	Low strength	0.50		
	Low strength	0.50				
SgF:						
Shelocta	Severe		Poorly suited		Poorly suited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	0.50	Low strength	0.50	Low strength	0.50
Brownsville	Severe		Poorly suited		Poorly suited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	0.50	Low strength	0.50	Low strength	0.50
ShE:						
Shelocta	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Restrictive layer	0.50	Low strength	0.50	Slope	0.50
	Low strength	0.50				
Cruze	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
Weikert	Severe		Poorly suited		Moderately suited	
	Restrictive layer	1.00	Slope	1.00	Low strength	0.50
	Slope	0.50	Low strength	0.50	Slope	0.50
	Low strength	0.50				
SkE:						
Shelocta	Severe		Poorly suited		Moderately suited	
	Slope	1.00	Slope	1.00	Slope	0.50
	Low strength	0.50	Low strength	0.50	Low strength	0.50
Rigley	Severe		Poorly suited		Moderately suited	
	Slope	1.00	Slope	1.00	Slope	0.50
Sp:						
Skidmore	Severe		Poorly suited		Well suited	
	Flooding	1.00	Flooding	1.00		
St:						
Sloan	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Wetness	1.00		
			Low strength	0.50		
SuB:						
Spargus	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sv:						
Stonelick	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
Sw:						
Stonelick	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
TbA:						
Taggart	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		
ThC3:						
Thrifton	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
	Stickiness/slope	0.50	Low strength	0.50	Stickiness	0.50
			Stickiness	0.50		
ThD3:						
Thrifton	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Stickiness	0.50
	Stickiness/slope	0.50	Stickiness	0.50		
ThE3:						
Thrifton	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50	Slope	0.50
	Stickiness/slope	0.50	Stickiness	0.50	Stickiness	0.50
TnA:						
Tilsit	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
To:						
Tioga	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
TyA:						
Tyler	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Wetness	0.50	Low strength	0.50
			Low strength	0.50		
Ud:						
Udorthents	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50

Table 13.--Forestland Harvesting Activities--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wk:						
Westland	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Ponding	1.00	Low strength	0.50
			Wetness	1.00		
			Low strength	0.50		
WtB:						
Wyatt	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
WyC2:						
Wyatt	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Slope	0.50	Low strength	0.50
			Low strength	0.50		
WyD2:						
Wyatt	Moderate		Poorly suited		Moderately suited	
	Slope	0.50	Slope	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		

Table 14.--Forestland Regeneration Activities

(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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
Aa:						
Adrian	Well suited		Well suited		Low	
AcC2:						
Alexandria	Moderately suited		Well suited		Low	
	Slope	0.50				
	Stickiness	0.50				
AcD2:						
Alexandria	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.50				
AcE2:						
Alexandria	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stickiness	0.50				
AeE2:						
Alexandria	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stickiness	0.50				
Fox	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
AvA:						
Avonburg	Well suited		Well suited		Low	
AvB:						
Avonburg	Well suited		Well suited		Low	
BeD:						
Berks	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stoniness	0.50				
BeE:						
Berks	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stoniness	0.50				
BgC:						
Berks	Moderately suited		Well suited		Low	
	Stoniness	0.50				
	Slope	0.50				
Tarhollow	Moderately suited		Well suited		Low	
	Slope	0.50				
CaB:						
Cana	Well suited		Well suited		Low	
CaC2:						
Cana	Moderately suited		Well suited		Low	
	Slope	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
CaD2:						
Cana	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
CaE2:						
Cana	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
Cd:						
Carlisle	Well suited		Well suited		Low	
CeD:						
Casco	Moderately suited		Poorly suited		Low	
	Slope	0.50	Slope	0.50		
	Stoniness	0.50				
Rodman	Moderately suited		Poorly suited		Low	
	Slope	0.50	Slope	0.50		
	Stoniness	0.50				
CgA:						
Celina	Well suited		Well suited		Low	
CgB:						
Celina	Well suited		Well suited		Low	
CgB2:						
Celina	Moderately suited		Well suited		Low	
	Stickiness	0.50				
ChA:						
Chavies	Well suited		Well suited		Low	
CmA:						
Cidermill	Well suited		Well suited		Low	
CmB:						
Cidermill	Well suited		Well suited		Low	
Cp:						
Clifty	Moderately suited		Well suited		Low	
	Stoniness	0.50				
CrA:						
Coolville	Well suited		Well suited		Low	
CrB:						
Coolville	Well suited		Well suited		Low	
CrC2:						
Coolville	Moderately suited		Well suited		Low	
	Slope	0.50				
CvA:						
Crosby	Moderately suited		Well suited		Low	
	Stickiness	0.50				
CvB:						
Crosby	Moderately suited		Well suited		Low	
	Stickiness	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for site preparation: Rating class and limiting features	Value	Potential for damage to soil by fire: Rating class and limiting features	Value
CwC2:						
Cruze	Moderately suited		Well suited		Low	
	Slope	0.50				
CwD:						
Cruze	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
CwE:						
Cruze	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Well suited		Well suited		Low	
EeB:						
Eldean	Well suited		Well suited		Low	
EeC2:						
Eldean	Moderately suited		Well suited		Low	
	Slope	0.50				
EgA:						
Eldean	Moderately suited		Well suited		Low	
	Stoniness	0.50				
EgB:						
Eldean	Moderately suited		Well suited		Low	
	Stoniness	0.50				
EgC2:						
Eldean	Moderately suited		Well suited		Low	
	Slope	0.50				
	Stoniness	0.50				
ErD:						
Ernest	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stoniness	0.50				
EuA:						
Euclid	Well suited		Well suited		Low	
FhA:						
Fitchville	Well suited		Well suited		Low	
FhB:						
Fitchville	Well suited		Well suited		Low	
FnB:						
Fox	Well suited		Well suited		Low	
FnC2:						
Fox	Moderately suited		Well suited		Low	
	Slope	0.50				
Ge:						
Gessie	Well suited		Well suited		Low	

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
Gf:						
Gessie	Well suited		Well suited		Low	
GgC2:						
Gilpin	Moderately suited		Well suited		Low	
	Stoniness	0.50				
	Slope	0.50				
GhC:						
Gilpin	Moderately suited		Well suited		Low	
	Stoniness	0.50				
	Slope	0.50				
Tilsit	Moderately suited		Well suited		Low	
	Slope	0.50				
GnA:						
Glenford	Well suited		Well suited		Low	
GnB:						
Glenford	Well suited		Well suited		Low	
HaB:						
Haubstadt	Well suited		Well suited		Low	
HaC2:						
Haubstadt	Moderately suited		Well suited		Low	
	Slope	0.50				
Hd:						
Haymond	Well suited		Well suited		Low	
HeA:						
Henshaw	Well suited		Well suited		Low	
HkD2:						
Hickory	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.50				
HkE2:						
Hickory	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
Ht:						
Huntington	Well suited		Well suited		Low	
KaA:						
Kendallville	Well suited		Well suited		Low	
KaB:						
Kendallville	Well suited		Well suited		Low	
KeC2:						
Kendallville	Moderately suited		Well suited		Low	
	Slope	0.50				
Eldean	Moderately suited		Well suited		Low	
	Slope	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
KeD2:						
Kendallville	Moderately suited		Poorly suited		Low	
	Slope	0.50	Slope	0.50		
Eldean	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
KeE2:						
Kendallville	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
Eldean	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
Kn:						
Kinn	Poorly suited		Poorly suited		Low	
	Stickiness	0.75	Stickiness	0.50		
Ko:						
Kokomo	Moderately suited		Well suited		Low	
	Stickiness	0.50				
Kp:						
Kokomo	Moderately suited		Well suited		Low	
	Stickiness	0.50				
LfC2:						
Latham	Poorly suited		Poorly suited		Low	
	Stickiness	0.75	Stickiness	0.50		
	Slope	0.50				
LfD2:						
Latham	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.75	Stickiness	0.50		
LfE:						
Latham	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stickiness	0.75	Stickiness	0.50		
LgD:						
Latham	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.75	Stickiness	0.50		
Wharton	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stoniness	0.50				
LrB:						
Libre	Poorly suited		Poorly suited		Low	
	Stickiness	0.75	Stickiness	0.50		
LrC2:						
Libre	Poorly suited		Poorly suited		Low	
	Stickiness	0.75	Stickiness	0.50		
	Slope	0.50				
MaB:						
Markland	Moderately suited		Well suited		Low	
	Stickiness	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
MbC2:						
Markland	Moderately suited		Well suited		Low	
	Stickiness	0.50				
	Slope	0.50				
MbD2:						
Markland	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.50				
MbE2:						
Markland	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stickiness	0.50				
McA:						
Martinsville	Well suited		Well suited		Low	
MdA:						
McGary	Moderately suited		Well suited		Low	
	Stickiness	0.50				
MdB:						
McGary	Moderately suited		Well suited		Low	
	Stickiness	0.50				
MeC2:						
Mentor	Moderately suited		Well suited		Low	
	Slope	0.50				
MeD2:						
Mentor	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
MfA:						
Mentor	Well suited		Well suited		Low	
MgA:						
Mentor	Well suited		Well suited		Low	
MgB:						
Mentor	Well suited		Well suited		Low	
MhB:						
Miamian	Well suited		Well suited		Low	
MhB2:						
Miamian	Moderately suited		Well suited		Low	
	Stickiness	0.50				
MhC2:						
Miamian	Moderately suited		Well suited		Low	
	Slope	0.50				
	Stickiness	0.50				
MhD2:						
Miamian	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
MhE:						
Miamian	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stickiness	0.50				
MmC2:						
Miamian	Moderately suited		Well suited		Low	
	Slope	0.50				
	Stickiness	0.50				
MmD2:						
Miamian	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.50				
MnB:						
Miamian	Well suited		Well suited		Low	
Lewisburg	Moderately suited		Well suited		Low	
	Stickiness	0.50				
MoB:						
Milton	Moderately suited		Well suited		Low	
	Stickiness	0.50				
MoC2:						
Milton	Moderately suited		Well suited		Low	
	Stickiness	0.50				
	Slope	0.50				
MoE2:						
Milton	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.50				
NeC2:						
Negley	Moderately suited		Well suited		Low	
	Stoniness	0.50				
	Slope	0.50				
NeD2:						
Negley	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stoniness	0.50				
NeE2:						
Negley	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stoniness	0.50				
NnA:						
Nineveh	Well suited		Well suited		Low	
NnB:						
Nineveh	Well suited		Well suited		Low	
ObA:						
Ockley	Moderately suited		Well suited		Low	
	Stickiness	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
ObB:						
Ockley	Moderately suited		Well suited		Low	
	Stickiness	0.50				
OmB:						
Omulga	Well suited		Well suited		Low	
OmC2:						
Omulga	Moderately suited		Well suited		Low	
	Slope	0.50				
Or:						
Orrville	Well suited		Well suited		Low	
OwB:						
Otwell	Well suited		Well suited		Low	
Pc:						
Patton	Well suited		Well suited		Low	
Pg:						
Peoga	Well suited		Well suited		Low	
PkA:						
Pike	Well suited		Well suited		Low	
PkB:						
Pike	Well suited		Well suited		Low	
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	Well suited		Well suited		Low	
PtB:						
Princeton	Well suited		Well suited		Low	
PtC:						
Princeton	Moderately suited		Well suited		Low	
	Slope	0.50				
PtD:						
Princeton	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
RbA:						
Rainsboro	Well suited		Well suited		Low	
RbB:						
Rainsboro	Well suited		Well suited		Low	
RbC2:						
Rainsboro	Moderately suited		Well suited		Low	
	Slope	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
RcF:						
Rigley	Unsuited		Unsuited		Low	
	Slope	1.00	Slope	1.00		
Rock outcrop	Not rated		Not rated		Not rated	
RdD2:						
Rodman	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stoniness	0.50				
RdE2:						
Rodman	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stoniness	0.50				
Rn:						
Ross	Well suited		Well suited		Low	
Ro:						
Rossburg	Well suited		Well suited		Low	
RpA:						
Rossmoyne	Well suited		Well suited		Low	
RpB:						
Rossmoyne	Well suited		Well suited		Low	
RpC2:						
Rossmoyne	Moderately suited		Well suited		Low	
	Slope	0.50				
RsB:						
Rossmoyne	Well suited		Well suited		Low	
Cana	Well suited		Well suited		Low	
RsC2:						
Rossmoyne	Moderately suited		Well suited		Low	
	Slope	0.50				
Cana	Moderately suited		Well suited		Low	
	Slope	0.50				
SfD:						
Shelocta	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stoniness	0.50				
SgF:						
Shelocta	Unsuited		Unsuited		Low	
	Slope	1.00	Slope	1.00		
	Stoniness	0.50				
Brownsville	Unsuited		Unsuited		Low	
	Slope	1.00	Slope	1.00		
	Stoniness	0.50				

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
ShE:						
Shelocta	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stoniness	0.50				
Cruze	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
Weikert	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stoniness	0.75	Stoniness	0.50		
SkE:						
Shelocta	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stoniness	0.50				
Rigley	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stoniness	0.50				
Sp:						
Skidmore	Moderately suited		Well suited		Low	
	Stoniness	0.50				
St:						
Sloan	Well suited		Well suited		Low	
SuB:						
Spargus	Unsuited		Poorly suited		Low	
	Stoniness	1.00	Stoniness	0.50		
	Stickiness	0.75	Stickiness	0.50		
Sv:						
Stonelick	Well suited		Well suited		Low	
Sw:						
Stonelick	Well suited		Well suited		Low	
TbA:						
Taggart	Well suited		Well suited		Low	
ThC3:						
Thrifton	Poorly suited		Poorly suited		Low	
	Stickiness	0.75	Stickiness	0.50		
	Slope	0.50				
ThD3:						
Thrifton	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.75	Stickiness	0.50		
ThE3:						
Thrifton	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.50		
	Stickiness	0.50	Stickiness	0.50		
	Stoniness	0.50				
TnA:						
Tilsit	Well suited		Well suited		Low	

Table 14.--Forestland Regeneration Activities--Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		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
To:						
Tioga	Moderately suited		Well suited		Low	
	Stoniness	0.50				
TyA:						
Tyler	Well suited		Well suited		Low	
Ud:						
Udorthents	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Well suited		Well suited		Low	
Wk:						
Westland	Well suited		Well suited		Low	
WtB:						
Wyatt	Moderately suited		Well suited		Low	
	Stickiness	0.50				
WyC2:						
Wyatt	Moderately suited		Well suited		Low	
	Stickiness	0.50				
	Slope	0.50				
WyD2:						
Wyatt	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.50		
	Stickiness	0.50				

Table 15a.--Recreation

(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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Aa:						
Adrian	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Ponding	1.00
AcC2:						
Alexandria	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21
AcD2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
AcE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
AeE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Fox	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
AvA:						
Avonburg	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
AvB:						
Avonburg	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	0.48
BeD:						
Berks	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	0.42
					Content of large stones	0.32

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BeE:						
Berks	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	0.42
					Content of large stones	0.32
BgC:						
Berks	Somewhat limited		Somewhat limited		Very limited	
	Gravel content	0.39	Gravel content	0.39	Slope	1.00
	Slope	0.37	Slope	0.37	Gravel content	1.00
					Depth to bedrock	0.42
					Content of large stones	0.32
Tarhollow	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Slope	0.37	Slope	0.37	Restricted permeability	0.96
CaB:						
Cana	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Slope	0.48
					Depth to saturated zone	0.08
CaC2:						
Cana	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Depth to saturated zone	0.08	Slope	0.04	Restricted permeability	0.96
	Slope	0.04	Depth to saturated zone	0.03	Depth to saturated zone	0.08
CaD2:						
Cana	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08
CaE2:						
Cana	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08
Cd:						
Carlisle	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Ponding	1.00

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CeD:						
Casco	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.36	Gravel content	0.36	Gravel content	1.00
					Content of large stones	0.01
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.07	Gravel content	0.07	Gravel content	1.00
CgA:						
Celina	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08
CgB:						
Celina	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.48
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Restricted permeability	0.21
					Depth to saturated zone	0.08
CgB2:						
Celina	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.48
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Restricted permeability	0.21
					Depth to saturated zone	0.08
ChA:						
Chavies	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Gravel content	0.06
CmA:						
Cidermill	Not limited		Not limited		Not limited	
CmB:						
Cidermill	Not limited		Not limited		Somewhat limited	
					Slope	0.48
Cp:						
Clifty	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60
CrA:						
Coolville	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08
CrB:						
Coolville	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Slope	0.48
					Depth to saturated zone	0.08

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CrC2:						
Coolville	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.99	Restricted permeability	0.99	Slope	1.00
	Depth to saturated zone	0.08	Slope	0.04	Restricted permeability	0.99
	Slope	0.04	Depth to saturated zone	0.03	Depth to saturated zone	0.08
CvA:						
Crosby	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
CvB:						
Crosby	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
					Slope	0.48
CwC2:						
Cruze	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	1.00
	Depth to saturated zone	0.08	Slope	0.04	Restricted permeability	0.43
	Slope	0.04	Depth to saturated zone	0.03	Depth to saturated zone	0.08
					Gravel content	0.04
CwD:						
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08
					Gravel content	0.04
CwE:						
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08
					Gravel content	0.04
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Not limited		Not limited		Not limited	
EeB:						
Eldean	Not limited		Not limited		Somewhat limited	
					Slope	0.48
EeC2:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EgA:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
					Content of large stones	0.01
EgB:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
					Slope	0.48
					Content of large stones	0.01
EgC2:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
	Gravel content	0.04	Gravel content	0.04	Gravel content	1.00
					Content of large stones	0.01
ErD:						
Ernest	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to cemented pan	0.64
					Depth to saturated zone	0.08
					Content of large stones	0.01
EuA:						
Euclid	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.48	Depth to saturated zone	0.86
	Depth to saturated zone	0.86	Restricted permeability	0.21	Restricted permeability	0.21
	Restricted permeability	0.21				
FhA:						
Fitchville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.48	Depth to saturated zone	0.86
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
FhB:						
Fitchville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.48	Depth to saturated zone	0.86
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.48
					Restricted permeability	0.21
FnB:						
Fox	Not limited		Not limited		Somewhat limited	
					Slope	0.48
FnC2:						
Fox	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ge:						
Gessie	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60
Gf:						
Gessie	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
GgC2:						
Gilpin	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
					Gravel content	0.43
					Depth to bedrock	0.42
GhC:						
Gilpin	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
					Gravel content	0.43
					Depth to bedrock	0.42
Tilsit	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.19	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to cemented pan	0.95
					Depth to saturated zone	0.44
GnA:						
Glenford	Not limited		Not limited		Not limited	
GnB:						
Glenford	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.48
					Restricted permeability	0.21
HaB:						
Haubstadt	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to cemented pan	0.79
					Slope	0.48
					Depth to saturated zone	0.08
HaC2:						
Haubstadt	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Depth to saturated zone	0.08	Slope	0.04	Restricted permeability	0.96
	Slope	0.04	Depth to saturated zone	0.03	Depth to cemented pan	0.79
					Depth to saturated zone	0.08
Hd:						
Haymond	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HeA:						
Henshaw	Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
					Slope	0.05
HkD2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
HkE2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Ht:						
Huntington	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60
KaA:						
Kendallville	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
KaB:						
Kendallville	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.48
					Restricted permeability	0.21
KeC2:						
Kendallville	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
KeD2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
KeE2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Kn:						
Kinn	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Restricted permeability	0.84	Restricted permeability	0.84
	Restricted permeability	0.84			Flooding	0.60

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ko:						
Kokomo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
Kp:						
Kokomo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
LfC2:						
Latham	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Depth to saturated zone	0.08	Slope	0.04	Restricted permeability	0.96
	Slope	0.04	Depth to saturated zone	0.03	Depth to bedrock	0.42
					Depth to saturated zone	0.08
					Gravel content	0.04
LfD2:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to bedrock	0.42
					Depth to saturated zone	0.08
					Gravel content	0.04
LfE:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to bedrock	0.42
					Depth to saturated zone	0.08
					Gravel content	0.04
LgD:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to bedrock	0.42
					Depth to saturated zone	0.08
					Gravel content	0.04
Wharton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Gravel content	0.17
					Depth to saturated zone	0.08

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LrB:						
Libre	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.84	Restricted permeability	0.84	Restricted permeability	0.84
					Slope	0.48
LrC2:						
Libre	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.21
MaB:						
Markland	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	0.48
					Restricted permeability	0.43
MbC2:						
Markland	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.43
MbD2:						
Markland	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
MbE2:						
Markland	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
McA:						
Martinsville	Very limited		Not limited		Not limited	
	Flooding	1.00				
MdA:						
McGary	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	0.43	Restricted permeability	0.43	Restricted permeability	0.43
MdB:						
McGary	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	0.43	Restricted permeability	0.43	Slope	0.48
					Restricted permeability	0.43
MeC2:						
Mentor	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
MeD2:						
Mentor	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MfA:						
Mentor	Very limited Flooding	1.00	Not limited		Not limited	
MgA:						
Mentor	Not limited		Not limited		Not limited	
MgB:						
Mentor	Not limited		Not limited		Somewhat limited Slope	0.48
MhB:						
Miamian	Somewhat limited Restricted permeability	0.21	Somewhat limited Restricted permeability	0.21	Somewhat limited Slope Restricted permeability	0.48 0.21
MhB2:						
Miamian	Somewhat limited Restricted permeability	0.21	Somewhat limited Restricted permeability	0.21	Somewhat limited Slope Restricted permeability	0.48 0.21
MhC2:						
Miamian	Somewhat limited Restricted permeability Slope	0.21 0.04	Somewhat limited Restricted permeability Slope	0.21 0.04	Very limited Slope Restricted permeability	1.00 0.21
MhD2:						
Miamian	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21
MhE:						
Miamian	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21
MmC2:						
Miamian	Somewhat limited Restricted permeability Slope	0.21 0.04	Somewhat limited Restricted permeability Slope	0.21 0.04	Very limited Slope Restricted permeability	1.00 0.21
MmD2:						
Miamian	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21
MnB:						
Miamian	Somewhat limited Restricted permeability	0.21	Somewhat limited Restricted permeability	0.21	Somewhat limited Slope Restricted permeability	0.48 0.21
Lewisburg	Somewhat limited Depth to saturated zone	0.11	Somewhat limited Depth to saturated zone	0.05	Somewhat limited Slope Depth to saturated zone	0.48 0.11

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoB:						
Milton	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	0.48
					Restricted permeability	0.43
					Depth to bedrock	0.42
MoC2:						
Milton	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.43
					Depth to bedrock	0.42
MoE2:						
Milton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
					Depth to bedrock	0.42
NeC2:						
Negley	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
					Gravel content	0.06
NeD2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.06
NeE2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.06
NnA:						
Nineveh	Not limited		Not limited		Somewhat limited	
					Gravel content	0.06
NnB:						
Nineveh	Not limited		Not limited		Somewhat limited	
					Slope	0.48
					Gravel content	0.06
ObA:						
Ockley	Not limited		Not limited		Not limited	
ObB:						
Ockley	Not limited		Not limited		Somewhat limited	
					Slope	0.48
OmB:						
Omulga	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.71
					Slope	0.48

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OmC2:						
Omulga	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.96
					Depth to cemented pan	0.71
Or:						
Orrville	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.48	Flooding	1.00
	Depth to saturated zone	0.86	Flooding	0.40	Depth to saturated zone	0.86
OwB:						
Otwell	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
					Slope	0.48
					Depth to cemented pan	0.10
Pc:						
Patton	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
Pg:						
Peoga	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
PkA:						
Pike	Not limited		Not limited		Not limited	
PkB:						
Pike	Not limited		Not limited		Somewhat limited	
					Slope	0.48
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
					Gravel content	0.06
					Slope	0.05
PtB:						
Princeton	Not limited		Not limited		Somewhat limited	
					Slope	0.48
PtC:						
Princeton	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PtD:						
Princeton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
RbA:						
Rainsboro	Not limited		Not limited		Not limited	
RbB:						
Rainsboro	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.71
					Slope	0.48
RbC2:						
Rainsboro	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
					Depth to cemented pan	0.71
RcF:						
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.39
					Content of large stones	0.01
Rock outcrop	Not rated		Not rated		Not rated	
RdD2:						
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.07	Gravel content	0.07	Gravel content	1.00
RdE2:						
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.07	Gravel content	0.07	Gravel content	1.00
Rn:						
Ross	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60
Ro:						
Rossburg	Very limited		Not limited		Not limited	
	Flooding	1.00				
RpA:						
Rossmoyne	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.48	Depth to saturated zone	0.86
RpB:						
Rossmoyne	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.48	Depth to cemented pan	0.90
					Depth to saturated zone	0.86
					Slope	0.48

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RpC2:						
Rossmoyne	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.48	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to cemented pan	0.90
					Depth to saturated zone	0.86
RsB:						
Rossmoyne	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.48	Depth to cemented pan	0.90
	Restricted permeability	0.43	Restricted permeability	0.43	Depth to saturated zone	0.86
					Slope	0.48
					Restricted permeability	0.43
Cana	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Slope	0.48
					Depth to saturated zone	0.08
RsC2:						
Rossmoyne	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.48	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Depth to cemented pan	0.90
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.86
					Restricted permeability	0.43
Cana	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.08	Slope	0.04	Slope	1.00
	Slope	0.04	Depth to saturated zone	0.03	Depth to saturated zone	0.08
SfD:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.17
SgF:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.17
Brownsville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Gravel content	1.00
	Gravel content	0.62	Gravel content	0.62	Slope	1.00
					Content of large stones	0.03
ShE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.17

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ShE:						
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08
					Gravel content	0.04
Weikert	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
SkE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.17
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Gravel content	1.00
	Gravel content	0.22	Gravel content	0.22	Slope	1.00
					Content of large stones	0.01
Sp:						
Skidmore	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Gravel content	0.36	Gravel content	1.00
	Gravel content	0.36			Flooding	0.60
					Content of large stones	0.01
St:						
Sloan	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00			Flooding	0.60
SuB:						
Spargus	Very limited		Very limited		Very limited	
	Flooding	1.00	Gravel content	1.00	Gravel content	1.00
	Gravel content	1.00			Slope	0.48
Sv:						
Stonelick	Very limited		Not limited		Somewhat limited	
	Flooding	1.00			Flooding	0.60
					Gravel content	0.06
Sw:						
Stonelick	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
					Gravel content	0.06
TbA:						
Taggart	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ThC3:						
Thrifton	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.96
					Gravel content	0.78
ThD3:						
Thrifton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
					Gravel content	0.78
ThE3:						
Thrifton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
					Gravel content	0.78
TnA:						
Tilsit	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.19	Depth to saturated zone	0.44
To:						
Tioga	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
TyA:						
Tyler	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.99	Depth to saturated zone	1.00
	Restricted permeability	0.99	Depth to saturated zone	0.94	Restricted permeability	0.99
Ud:						
Udorthents	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Not limited		Not limited		Not limited	
Wk:						
Westland	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
WtB:						
Wyatt	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Slope	0.48
					Depth to saturated zone	0.08

Table 15a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WyC2:						
Wyatt	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Depth to saturated zone	0.08	Slope	0.04	Restricted permeability	0.96
	Slope	0.04	Depth to saturated zone	0.03	Depth to saturated zone	0.08
WyD2:						
Wyatt	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.99	Restricted permeability	0.99	Restricted permeability	0.99
	Depth to saturated zone	0.08	Depth to saturated zone	0.03	Depth to saturated zone	0.08

Table 15b.--Recreation

(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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	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
Aa:						
Adrian	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
AcC2:						
Alexandria	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
AcD2:						
Alexandria	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02				
AcE2:						
Alexandria	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08		
AeE2:						
Alexandria	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08		
Fox	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08		
AvA:						
Avonburg	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
AvB:						
Avonburg	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
BeD:						
Berks	Somewhat limited		Not limited		Very limited	
	Slope	0.02			Slope	1.00
					Droughty	0.92
					Depth to bedrock	0.42
					Gravel content	0.39
					Content of large stones	0.32

Table 15b.--Recreation--Continued

Map symbol and soil name	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
BeE:						
Berks	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.08	Slope	1.00
					Droughty	0.97
					Depth to bedrock	0.42
					Gravel content	0.39
					Content of large stones	0.32
BgC:						
Berks	Not limited		Not limited		Somewhat limited	
					Droughty	0.95
					Depth to bedrock	0.42
					Gravel content	0.39
					Slope	0.37
					Content of large stones	0.32
Tarhollow	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.37
CaB:						
Cana	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
CaC2:						
Cana	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
					Depth to saturated zone	0.03
CaD2:						
Cana	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02			Depth to saturated zone	0.03
CaE2:						
Cana	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08	Depth to saturated zone	0.03
Cd:						
Carlisle	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
CeD:						
Casco	Not limited		Not limited		Very limited	
					Droughty	1.00
					Slope	1.00
					Gravel content	0.36
					Content of large stones	0.01

Table 15b.--Recreation--Continued

Map symbol and soil name	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
CeD:						
Rodman	Not limited		Not limited		Very limited	
					Slope	1.00
					Droughty	0.94
					Gravel content	0.07
CgA:						
Celina	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
CgB:						
Celina	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
CgB2:						
Celina	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
ChA:						
Chavies	Not limited		Not limited		Very limited	
					Too sandy	1.00
CmA:						
Cidermill	Not limited		Not limited		Not limited	
CmB:						
Cidermill	Not limited		Not limited		Not limited	
Cp:						
Clifty	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
CrA:						
Coolville	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
CrB:						
Coolville	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
CrC2:						
Coolville	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
					Depth to saturated zone	0.03
CvA:						
Crosby	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CvB:						
Crosby	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 15b.--Recreation--Continued

Map symbol and soil name	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
CwC2:						
Cruze	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
					Depth to saturated zone	0.03
CwD:						
Cruze	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02			Depth to saturated zone	0.03
CwE:						
Cruze	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08	Depth to saturated zone	0.03
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Not limited		Not limited		Very limited	
					Carbonate content	1.00
EeB:						
Eldean	Not limited		Not limited		Very limited	
					Carbonate content	1.00
					Droughty	0.01
EeC2:						
Eldean	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Carbonate content	1.00
					Slope	0.04
					Droughty	0.01
EgA:						
Eldean	Not limited		Not limited		Very limited	
					Carbonate content	1.00
					Gravel content	0.04
					Droughty	0.01
					Content of large stones	0.01
EgB:						
Eldean	Not limited		Not limited		Very limited	
					Carbonate content	1.00
					Gravel content	0.04
					Droughty	0.02
					Content of large stones	0.01
EgC2:						
Eldean	Not limited		Not limited		Very limited	
					Carbonate content	1.00
					Droughty	0.12
					Slope	0.04
					Gravel content	0.04
					Content of large stones	0.01

Table 15b.--Recreation--Continued

Map symbol and soil name	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
ErD:						
Ernest	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.50			Depth to cemented pan	0.64
					Depth to saturated zone	0.03
					Content of large stones	0.01
EuA:						
Euclid	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
FhA:						
Fitchville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
FhB:						
Fitchville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
FnB:						
Fox	Not limited		Not limited		Not limited	
FnC2:						
Fox	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
Ge:						
Gessie	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
Gf:						
Gessie	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
GgC2:						
Gilpin	Not limited		Not limited		Somewhat limited	
					Depth to bedrock	0.42
					Slope	0.04
GhC:						
Gilpin	Not limited		Not limited		Somewhat limited	
					Depth to bedrock	0.42
					Slope	0.04
Tilsit	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	0.95
					Depth to saturated zone	0.19
					Slope	0.04
GnA:						
Glenford	Not limited		Not limited		Not limited	
GnB:						
Glenford	Not limited		Not limited		Not limited	

Table 15b.--Recreation--Continued

Map symbol and soil name	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
HaB:						
Haubstadt	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.79
					Depth to saturated zone	0.03
HaC2:						
Haubstadt	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	0.79
					Slope	0.04
					Depth to saturated zone	0.03
Hd:						
Haymond	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
HeA:						
Henshaw	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
HkD2:						
Hickory	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02				
HkE2:						
Hickory	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08		
Ht:						
Huntington	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
KaA:						
Kendallville	Not limited		Not limited		Not limited	
KaB:						
Kendallville	Not limited		Not limited		Not limited	
KeC2:						
Kendallville	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
Eldean	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Carbonate content	1.00
					Slope	0.04
					Droughty	0.01
KeD2:						
Kendallville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
Eldean	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02			Carbonate content	1.00
					Droughty	0.08

Table 15b.--Recreation--Continued

Map symbol and soil name	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
KeE2:						
Kendallville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08		
Eldean	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08	Carbonate content	1.00
					Droughty	0.62
Kn:						
Kinn	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
Ko:						
Kokomo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
Kp:						
Kokomo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
LfC2:						
Latham	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to bedrock	0.42
					Slope	0.04
					Depth to saturated zone	0.03
LfD2:						
Latham	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02			Depth to bedrock	0.42
					Depth to saturated zone	0.03
LfE:						
Latham	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08	Depth to bedrock	0.42
					Depth to saturated zone	0.03
LgD:						
Latham	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.50			Depth to bedrock	0.42
					Depth to saturated zone	0.03
Wharton	Somewhat limited		Not limited		Very limited	
	Slope	0.50			Slope	1.00
					Depth to saturated zone	0.03
LrB:						
Libre	Not limited		Not limited		Not limited	

Table 15b.--Recreation--Continued

Map symbol and soil name	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
LrC2:						
Libre	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
MaB:						
Markland	Not limited		Not limited		Not limited	
MbC2:						
Markland	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
MbD2:						
Markland	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02				
MbE2:						
Markland	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08		
McA:						
Martinsville	Not limited		Not limited		Not limited	
MdA:						
McGary	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MdB:						
McGary	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MeC2:						
Mentor	Not limited		Not limited		Somewhat limited	
					Slope	0.04
MeD2:						
Mentor	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02				
MfA:						
Mentor	Not limited		Not limited		Not limited	
MgA:						
Mentor	Not limited		Not limited		Not limited	
MgB:						
Mentor	Not limited		Not limited		Not limited	
MhB:						
Miamian	Not limited		Not limited		Not limited	
MhB2:						
Miamian	Not limited		Not limited		Not limited	
MhC2:						
Miamian	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04

Table 15b.--Recreation--Continued

Map symbol and soil name	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
MhD2:						
Miamian	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02				
MhE:						
Miamian	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08		
MmC2:						
Miamian	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
MmD2:						
Miamian	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02				
MnB:						
Miamian	Not limited		Not limited		Not limited	
Lewisburg	Not limited		Not limited		Somewhat limited	
					Droughty	0.81
					Depth to saturated zone	0.05
MoB:						
Milton	Not limited		Not limited		Somewhat limited	
					Depth to bedrock	0.42
MoC2:						
Milton	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to bedrock	0.42
					Droughty	0.11
					Slope	0.04
MoE2:						
Milton	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.92			Depth to bedrock	0.42
					Droughty	0.14
NeC2:						
Negley	Not limited		Not limited		Somewhat limited	
					Slope	0.04
NeD2:						
Negley	Somewhat limited		Not limited		Very limited	
	Slope	0.02			Slope	1.00
NeE2:						
Negley	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.08	Slope	1.00
NnA:						
Nineveh	Not limited		Not limited		Not limited	
NnB:						
Nineveh	Not limited		Not limited		Not limited	

Table 15b.--Recreation--Continued

Map symbol and soil name	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
ObA:						
Ockley	Not limited		Not limited		Not limited	
ObB:						
Ockley	Not limited		Not limited		Not limited	
OmB:						
Omulga	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.71
OmC2:						
Omulga	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	0.71
					Slope	0.04
Or:						
Orrville	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
OwB:						
Otwell	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.10
Pc:						
Patton	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
Pg:						
Peoga	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
PkA:						
Pike	Not limited		Not limited		Not limited	
PkB:						
Pike	Not limited		Not limited		Not limited	
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
PtB:						
Princeton	Not limited		Not limited		Not limited	
PtC:						
Princeton	Not limited		Not limited		Somewhat limited	
					Slope	0.04

Table 15b.--Recreation--Continued

Map symbol and soil name	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
PtD:						
Princeton	Somewhat limited		Not limited		Very limited	
	Slope	0.02			Slope	1.00
RbA:						
Rainsboro	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.71
RbB:						
Rainsboro	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.71
RbC2:						
Rainsboro	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	0.71
					Slope	0.04
RcF:						
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.01
Rock outcrop	Not rated		Not rated		Not rated	
RdD2:						
Rodman	Somewhat limited		Not limited		Very limited	
	Slope	0.02			Slope	1.00
					Droughty	0.92
					Gravel content	0.07
RdE2:						
Rodman	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.08	Slope	1.00
					Droughty	0.92
					Gravel content	0.07
Rn:						
Ross	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
Ro:						
Rossburg	Not limited		Not limited		Not limited	
RpA:						
Rossmoyne	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to cemented pan	0.90
					Depth to saturated zone	0.48
RpB:						
Rossmoyne	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to cemented pan	0.90
					Depth to saturated zone	0.48

Table 15b.--Recreation--Continued

Map symbol and soil name	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
RpC2:						
Rossmoyne	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	0.90
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
					Slope	0.04
RsB:						
Rossmoyne	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to cemented pan	0.90
					Depth to saturated zone	0.48
Cana	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
RsC2:						
Rossmoyne	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	0.90
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
					Slope	0.04
Cana	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
					Depth to saturated zone	0.03
SfD:						
Shelocta	Somewhat limited		Not limited		Very limited	
	Slope	0.02			Slope	1.00
SgF:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Brownsville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.62
					Content of large stones	0.03
ShE:						
Shelocta	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.08	Slope	1.00
Cruze	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.08	Depth to saturated zone	0.03
Weikert	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.08	Slope	1.00
					Droughty	1.00
					Depth to bedrock	1.00

Table 15b.--Recreation--Continued

Map symbol and soil name	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
SkE:						
Shelocta	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.56	Slope	1.00
Rigley	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.56	Slope	1.00
					Gravel content	0.22
					Content of large stones	0.01
Sp:						
Skidmore	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
					Gravel content	0.36
					Droughty	0.11
					Content of large stones	0.01
St:						
Sloan	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
SuB:						
Spargus	Not limited		Not limited		Very limited	
					Gravel content	1.00
					Droughty	0.01
Sv:						
Stonelick	Not limited		Not limited		Somewhat limited	
					Flooding	0.60
Sw:						
Stonelick	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
TbA:						
Taggart	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
ThC3:						
Thrifton	Not limited		Not limited		Very limited	
					Droughty	1.00
					Carbonate content	1.00
					Slope	0.04
ThD3:						
Thrifton	Somewhat limited		Not limited		Very limited	
	Slope	0.02			Slope	1.00
					Droughty	1.00
					Carbonate content	1.00
ThE3:						
Thrifton	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.08	Slope	1.00
					Droughty	1.00
					Carbonate content	1.00

Table 15b.--Recreation--Continued

Map symbol and soil name	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
TnA:						
Tilsit	Not limited		Not limited		Somewhat limited	
					Depth to cemented pan	0.95
					Depth to saturated zone	0.19
To:						
Tioga	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Flooding	0.40	Flooding	1.00
TyA:						
Tyler	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
					Depth to cemented pan	0.01
Ud:						
Udorthents	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Not limited		Not limited		Not limited	
Wk:						
Westland	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
WtB:						
Wyatt	Not limited		Not limited		Somewhat limited	
					Depth to saturated zone	0.03
WyC2:						
Wyatt	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
					Depth to saturated zone	0.03
WyD2:						
Wyatt	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.02			Depth to saturated zone	0.03

Table 16.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Aa:										
Adrian	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
AcC2:										
Alexandria	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
AcD2:										
Alexandria	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
AcE2:										
Alexandria	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
AeE2:										
Alexandria	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Fox	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
AvA:										
Avonburg	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
AvB:										
Avonburg	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
BeD:										
Berks	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
BeE:										
Berks	Very poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
BgC:										
Berks	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
Tarhollow	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CaB:										
Cana	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CaC2:										
Cana	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CaD2:										
Cana	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CaE2:										
Cana	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 16.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Cd:										
Carlisle	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
CeD:										
Casco	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
Rodman	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
CgA:										
Celina	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
CgB:										
Celina	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CgB2:										
Celina	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
ChA:										
Chavies	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Poor
CmA:										
Cidermill	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CmB:										
Cidermill	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Cp:										
Clifty	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CrA:										
Coolville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
CrB:										
Coolville	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CrC2:										
Coolville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CvA:										
Crosby	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
CvB:										
Crosby	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
CwC2:										
Cruze	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
CwD:										
Cruze	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 16.--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
CwE:										
Cruze	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DAM.										
Dam										
EeA:										
Eldean	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EeB:										
Eldean	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EeC2:										
Eldean	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
EgA:										
Eldean	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EgB:										
Eldean	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
EgC2:										
Eldean	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ErD:										
Ernest	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
EuA:										
Euclid	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
FhA:										
Fitchville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
FhB:										
Fitchville	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
FnB:										
Fox	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FnC2:										
Fox	Fair	Good	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Ge:										
Gessie	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Gf:										
Gessie	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor
GgC2:										
Gilpin	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor

Table 16.--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
GhC:										
Gilpin	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Tilsit	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GnA:										
Glenford	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
GnB:										
Glenford	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HaB:										
Haubstadt	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HaC2:										
Haubstadt	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Hd:										
Haymond	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor
HeA:										
Henshaw	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
HkD2:										
Hickory	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
HkE2:										
Hickory	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Ht:										
Huntington	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
KaA:										
Kendallville	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
KaB:										
Kendallville	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
KeC2:										
Kendallville	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Eldean	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
KeD2:										
Kendallville	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Eldean	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 16.--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
KeE2:										
Kendallville	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Eldean	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Kn:										
Kinn	Good	Good	Good	Good	Fair	Fair	Fair	Good	Good	Poor
Ko:										
Kokomo	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
Kp:										
Kokomo	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
LfC2:										
Latham	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LfD2:										
Latham	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LfE:										
Latham	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LgD:										
Latham	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Wharton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
LrB:										
Libre	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LrC2:										
Libre	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
MaB:										
Markland	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MbC2:										
Markland	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MbD2:										
Markland	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MbE2:										
Markland	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
McA:										
Martinsville	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 16.--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
MdA:										
McGary	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
MdB:										
McGary	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MeC2:										
Mentor	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MeD2:										
Mentor	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MfA:										
Mentor	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MgA:										
Mentor	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MgB:										
Mentor	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MhB:										
Miamian	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MhB2:										
Miamian	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MhC2:										
Miamian	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MhD2:										
Miamian	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MhE:										
Miamian	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MmC2:										
Miamian	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MmD2:										
Miamian	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MnB:										
Miamian	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Lewisburg	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 16.--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
MoB:										
Milton	Fair	Good	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
MoC2:										
Milton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
MoE2:										
Milton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
NeC2:										
Negley	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
NeD2:										
Negley	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
NeE2:										
Negley	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
NnA:										
Nineveh	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
NnB:										
Nineveh	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
ObA:										
Ockley	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
ObB:										
Ockley	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
OmB:										
Omulga	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
OmC2:										
Omulga	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Or:										
Orrville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
OwB:										
Otwell	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Pc:										
Patton	Good	Good	Good	Fair	Fair	Good	Good	Good	Fair	Good
Pg:										
Peoga	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good

Table 16.--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
PkA:										
Pike	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
PkB:										
Pike	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Pn.										
Pits, gravel										
Po.										
Pits, quarry										
Pp:										
Pope	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
PtB:										
Princeton	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
PtC:										
Princeton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PtD:										
Princeton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
RbA:										
Rainsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
RbB:										
Rainsboro	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
RbC2:										
Rainsboro	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
RcF:										
Rigley	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Rock outcrop.										
RdD2:										
Rodman	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
RdE2:										
Rodman	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
Rn:										
Ross	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Ro:										
Rossburg	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 16.--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
RpA:										
Rossmoyne	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
RpB:										
Rossmoyne	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
RpC2:										
Rossmoyne	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
RsB:										
Rossmoyne	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Cana	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
RsC2:										
Rossmoyne	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Cana	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SfD:										
Shelocta	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
SgF:										
Shelocta	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Brownsville	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
ShE:										
Shelocta	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Cruze	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Weikert	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
SkE:										
Shelocta	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rigley	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Sp:										
Skidmore	Fair	Good	Good	Fair	Fair	Poor	Very poor	Good	Fair	Very poor
St:										
Sloan	Fair	Fair	Fair	Poor	Poor	Good	Good	Fair	Poor	Good

Table 16.--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
SuB:										
Spargus	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Sv:										
Stonelick	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Sw:										
Stonelick	Poor	Fair	Fair	Good	Good	Poor	Very poor	Fair	Good	Very poor
TbA:										
Taggart	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
ThC3:										
Thrifton	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
ThD3:										
Thrifton	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ThE3:										
Thrifton	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
TnA:										
Tilsit	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
To:										
Tioga	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
TyA:										
Tyler	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
Ud.										
Udorthents										
W.										
Water										
WcA:										
Warsaw	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Wk:										
Westland	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
WtB:										
Wyatt	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
WyC2:										
Wyatt	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 16.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
WyD2:										
Wyatt	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 17a.--Building Site Development

(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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	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
Aa:						
Adrian	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
AcC2:						
Alexandria	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.61	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.04		
AcD2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.61	Shrink-swell	0.50
AcE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.61	Shrink-swell	0.50
			Shrink-swell	0.50		
AeE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.61	Shrink-swell	0.50
			Shrink-swell	0.50		
Fox	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
AvA:						
Avonburg	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
AvB:						
Avonburg	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
BeD:						
Berks	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Depth to hard bedrock	0.42	Slope	1.00	Depth to hard bedrock	0.42

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
BeE:						
Berks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to hard bedrock	0.42
BgC:						
Berks	Somewhat limited		Very limited		Very limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Depth to hard bedrock	0.42
Tarhollow	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
	Slope	0.37	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.37		
CaB:						
Cana	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
CaC2:						
Cana	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.08	Shrink-swell	0.50	Shrink-swell	0.50
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.08
CaD2:						
Cana	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.50	Slope	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
CaE2:						
Cana	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
Cd:						
Carlisle	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00			Content of organic matter	1.00
CeD:						
Casco	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
CgA:						
Celina	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
CgB:						
Celina	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
CgB2:						
Celina	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
ChA:						
Chavies	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
CmA:						
Cidermill	Not limited		Not limited		Not limited	
CmB:						
Cidermill	Not limited		Not limited		Not limited	
Cp:						
Clifty	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
CrA:						
Coolville	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
CrB:						
Coolville	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
CrC2:						
Coolville	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.08	Shrink-swell	0.50	Shrink-swell	0.50
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.08
CvA:						
Crosby	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
CvB:						
Crosby	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

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
CwC2:						
Cruze	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	1.00	Slope	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Shrink-swell	0.50
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.08
CwD:						
Cruze	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Slope	1.00	Depth to saturated zone	0.08
CwE:						
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Depth to saturated zone	0.08
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
EeB:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
EeC2:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
EgA:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
EgB:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
EgC2:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
ErD:						
Ernest	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
EuA:						
Euclid	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Depth to saturated zone	0.86

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
FhA:						
Fitchville	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FhB:						
Fitchville	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FnB:						
Fox	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FnC2:						
Fox	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
Ge:						
Gessie	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
Gf:						
Gessie	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
GgC2:						
Gilpin	Somewhat limited		Very limited		Very limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to hard bedrock	0.42
GhC:						
Gilpin	Somewhat limited		Very limited		Very limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to hard bedrock	0.42
Tilsit	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.44
GnA:						
Glenford	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
GnB:						
Glenford	Not limited		Somewhat limited		Not limited	
			Depth to saturated zone	0.99		
HaB:						
Haubstadt	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Depth to saturated zone	0.08

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
HaC2:						
Haubstadt	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.08
Hd:						
Haymond	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
HeA:						
Henshaw	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
HkD2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
HkE2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Ht:						
Huntington	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
KaA:						
Kendallville	Somewhat limited		Not limited		Somewhat limited	
	Shrink-swell	0.50			Shrink-swell	0.50
KaB:						
Kendallville	Somewhat limited		Not limited		Somewhat limited	
	Shrink-swell	0.50			Shrink-swell	0.50
KeC2:						
Kendallville	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Slope	0.04	Slope	1.00
	Slope	0.04			Shrink-swell	0.50
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
KeD2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
KeE2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
Kn:						
Kinn	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.99		
Ko:						
Kokomo	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Kp:						
Kokomo	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
LfC2:						
Latham	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Depth to soft bedrock	0.42	Depth to saturated zone	0.08
			Slope	0.04		
LfD2:						
Latham	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Slope	1.00	Depth to saturated zone	0.08
			Depth to soft bedrock	0.42		
LfE:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Depth to saturated zone	0.08
			Depth to soft bedrock	0.42		
LgD:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Depth to saturated zone	0.08
			Depth to soft bedrock	0.42		
Wharton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Depth to saturated zone	0.08
			Depth to hard bedrock	0.05		

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
LrB:						
Libre	Not limited		Somewhat limited		Not limited	
			Depth to saturated zone	0.99		
LrC2:						
Libre	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Depth to saturated zone	0.99	Slope	1.00
			Slope	0.04		
MaB:						
Markland	Very limited		Somewhat limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00
			Depth to saturated zone	0.35		
MbC2:						
Markland	Very limited		Somewhat limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	0.50	Shrink-swell	1.00
	Slope	0.04	Depth to saturated zone	0.35	Slope	1.00
			Slope	0.04		
MbD2:						
Markland	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Shrink-swell	0.50	Shrink-swell	1.00
			Depth to saturated zone	0.35		
MbE2:						
Markland	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.35		
McA:						
Martinsville	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
MdA:						
McGary	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
MdB:						
McGary	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
MeC2:						
Mentor	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Depth to saturated zone	0.15	Slope	1.00
			Slope	0.04		

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
MeD2:						
Mentor	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to saturated zone	0.15		
MfA:						
Mentor	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.61		
MgA:						
Mentor	Not limited		Not limited		Not limited	
MgB:						
Mentor	Not limited		Not limited		Not limited	
MhB:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
			Shrink-swell	0.50		
MhB2:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
			Shrink-swell	0.50		
MhC2:						
Miamian	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.95	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.04		
MhD2:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
			Shrink-swell	0.50		
MhE:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
			Shrink-swell	0.50		
MmC2:						
Miamian	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.95	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.04		

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
MmD2:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
			Shrink-swell	0.50		
MnB:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
			Shrink-swell	0.50		
Lewisburg	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.11	Shrink-swell	0.50	Depth to saturated zone	0.11
MoB:						
Milton	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
	Depth to hard bedrock	0.42	Shrink-swell	0.50	Depth to hard bedrock	0.42
MoC2:						
Milton	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Slope	1.00
	Depth to hard bedrock	0.42	Shrink-swell	0.50	Shrink-swell	0.50
	Slope	0.04	Slope	0.04	Depth to hard bedrock	0.42
MoE2:						
Milton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
	Depth to hard bedrock	0.42	Shrink-swell	0.50	Depth to hard bedrock	0.42
NeC2:						
Negley	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
NeD2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
NeE2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
NnA:						
Nineveh	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
NnB:						
Nineveh	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
ObA:						
Ockley	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
ObB:						
Ockley	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
OmB:						
Omulga	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
OmC2:						
Omulga	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.04		
Or:						
Orrville	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Depth to saturated zone	0.86
OwB:						
Otwell	Not limited		Somewhat limited		Not limited	
			Depth to saturated zone	0.99		
Pc:						
Patton	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Pg:						
Peoga	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
PkA:						
Pike	Not limited		Not limited		Not limited	
PkB:						
Pike	Not limited		Not limited		Not limited	
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
PtB:						
Princeton	Not limited		Not limited		Not limited	
PtC:						
Princeton	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
PtD:						
Princeton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
RbA:						
Rainsboro	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
RbB:						
Rainsboro	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
RbC2:						
Rainsboro	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.04		
RcF:						
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop	Not rated		Not rated		Not rated	
RdD2:						
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
RdE2:						
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Rn:						
Ross	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.15		
Ro:						
Rossburg	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
RpA:						
Rossmoyne	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
RpB:						
Rossmoyne	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
RpC2:						
Rossmoyne	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Depth to saturated zone	0.86
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
RsB:						
Rossmoyne	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Cana	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08
RsC2:						
Rossmoyne	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Depth to saturated zone	0.86
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
Cana	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.08	Shrink-swell	0.50	Shrink-swell	0.50
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.08
SfD:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
SgF:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
Brownsville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.04		
ShE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
	Depth to saturated zone	0.08	Shrink-swell	0.50	Depth to saturated zone	0.08

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
ShE:						
Weikert	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
SkE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Sp:						
Skidmore	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.82		
St:						
Sloan	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
SuB:						
Spargus	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.15		
Sv:						
Stonelick	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
Sw:						
Stonelick	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
TbA:						
Taggart	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	0.44			Shrink-swell	0.44
ThC3:						
Thrifton	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.44	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Shrink-swell	0.44	Shrink-swell	0.44
			Slope	0.04		
ThD3:						
Thrifton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.44	Depth to saturated zone	1.00	Shrink-swell	0.44
			Shrink-swell	0.44		

Table 17a.--Building Site Development--Continued

Map symbol and soil name	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
ThE3:						
Thrifton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to saturated zone	1.00		
TnA:						
Tilsit	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	1.00	Depth to saturated zone	0.44
To:						
Tioga	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.35		
TyA:						
Tyler	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Ud:						
Udorthents	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Not limited		Not limited		Not limited	
Wk:						
Westland	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
WtB:						
Wyatt	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Depth to saturated zone	0.08
WyC2:						
Wyatt	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.08
WyD2:						
Wyatt	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.08	Slope	1.00	Depth to saturated zone	0.08

Table 17b.--Building Site Development

(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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	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
Aa:						
Adrian	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	Content of organic matter	1.00
	Subsidence	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Content of organic matter	1.00		
AcC2:						
Alexandria	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.61	Slope	0.04
	Frost action	0.50	Cutbanks cave	0.10		
	Slope	0.04	Slope	0.04		
AcD2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.61		
	Frost action	0.50	Cutbanks cave	0.10		
AcE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.61		
	Frost action	0.50	Cutbanks cave	0.10		
AeE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.61		
	Frost action	0.50	Cutbanks cave	0.10		
Fox	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
AvA:						
Avonburg	Very limited		Very limited		Very limited	
	Frost action	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				
AvB:						
Avonburg	Very limited		Very limited		Very limited	
	Frost action	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				

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
BeD:						
Berks	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Depth to hard bedrock	0.42	Slope	1.00	Droughty	0.92
			Cutbanks cave	0.10	Depth to bedrock	0.42
					Gravel content	0.39
					Content of large stones	0.32
BeE:						
Berks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Droughty	0.97
			Cutbanks cave	0.10	Depth to bedrock	0.42
					Gravel content	0.39
					Content of large stones	0.32
BgC:						
Berks	Somewhat limited		Very limited		Somewhat limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Droughty	0.95
	Slope	0.37	Slope	0.37	Depth to bedrock	0.42
			Cutbanks cave	0.10	Gravel content	0.39
					Slope	0.37
					Content of large stones	0.32
Tarhollow	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.37
	Shrink-swell	0.50	Slope	0.37		
	Slope	0.37	Too clayey	0.28		
			Cutbanks cave	0.10		
CaB:						
Cana	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Too clayey	0.03		
CaC2:						
Cana	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.04
	Shrink-swell	0.50	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Slope	0.04	Slope	0.04		
	Depth to saturated zone	0.03	Too clayey	0.03		
CaD2:						
Cana	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Too clayey	0.03		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
CaE2:						
Cana	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Too clayey	0.03		
Cd:						
Carlisle	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	Content of organic matter	1.00
	Subsidence	1.00	Content of organic matter	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
CeD:						
Casco	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Droughty	1.00
	Shrink-swell	0.50	Slope	1.00	Slope	1.00
					Gravel content	0.36
					Content of large stones	0.01
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
			Slope	1.00	Droughty	0.94
					Gravel content	0.07
CgA:						
Celina	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Too clayey	0.01		
CgB:						
Celina	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Too clayey	0.01		
CgB2:						
Celina	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Too clayey	0.01		
ChA:						
Chavies	Somewhat limited		Somewhat limited		Very limited	
	Flooding	0.40	Cutbanks cave	0.10	Too sandy	1.00
CmA:						
Cidermill	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
CmB:						
Cidermill	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
Cp:						
Clifty	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
			Flooding	0.60		
CrA:						
Coolville	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to		Depth to	
	Shrink-swell	0.50	saturated zone	1.00	saturated zone	0.03
	Depth to		Too clayey	0.28		
	saturated zone	0.03	Cutbanks cave	0.10		
CrB:						
Coolville	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to		Depth to	
	Shrink-swell	0.50	saturated zone	1.00	saturated zone	0.03
	Depth to		Too clayey	0.28		
	saturated zone	0.03	Cutbanks cave	0.10		
CrC2:						
Coolville	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to		Slope	0.04
	Shrink-swell	0.50	saturated zone	1.00	Depth to	
	Slope	0.04	Too clayey	0.28	saturated zone	0.03
	Depth to		Cutbanks cave	0.10		
	saturated zone	0.03	Slope	0.04		
CvA:						
Crosby	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to		Depth to	
	Depth to		saturated zone	1.00	saturated zone	1.00
	saturated zone	1.00	Depth to dense			
	Shrink-swell	0.50	layer	0.50		
			Cutbanks cave	0.10		
CvB:						
Crosby	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to		Depth to	
	Depth to		saturated zone	1.00	saturated zone	1.00
	saturated zone	1.00	Depth to dense			
	Shrink-swell	0.50	layer	0.50		
			Cutbanks cave	0.10		
CwC2:						
Cruze	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to		Slope	0.04
	Shrink-swell	0.50	saturated zone	1.00	Depth to	
	Slope	0.04	Too clayey	0.50	saturated zone	0.03
	Depth to		Cutbanks cave	0.10		
	saturated zone	0.03	Slope	0.04		
CwD:						
Cruze	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to		Slope	1.00
	Shrink-swell	1.00	saturated zone	1.00	Depth to	
	Slope	1.00	Slope	1.00	saturated zone	0.03
	Depth to		Too clayey	0.50		
	saturated zone	0.03	Cutbanks cave	0.10		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
CwE:						
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to		Depth to	
	Shrink-swell	1.00	saturated zone	1.00	saturated zone	0.03
	Depth to		Too clayey	0.50		
	saturated zone	0.03	Cutbanks cave	0.10		
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Too clayey	0.01		
EeB:						
Eldean	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Too clayey	0.01	Droughty	0.01
EeC2:						
Eldean	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Slope	0.04	Slope	0.04
	Slope	0.04	Too clayey	0.01	Droughty	0.01
EgA:						
Eldean	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Too clayey	0.01	Gravel content	0.04
					Droughty	0.01
					Content of large stones	0.01
EgB:						
Eldean	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Too clayey	0.01	Gravel content	0.04
					Droughty	0.02
					Content of large stones	0.01
EgC2:						
Eldean	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Slope	0.04	Droughty	0.12
	Slope	0.04	Too clayey	0.01	Slope	0.04
					Gravel content	0.04
					Content of large stones	0.01
ErD:						
Ernest	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to		Depth to cemented	
	Frost action	0.50	saturated zone	1.00	pan	0.64
	Depth to		Cutbanks cave	0.10	Depth to	
	saturated zone	0.03			saturated zone	0.03
					Content of large stones	0.01

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
EuA:						
Euclid	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Depth to saturated zone	0.48	Cutbanks cave	0.10		
	Flooding	0.40				
FhA:						
Fitchville	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.48				
FhB:						
Fitchville	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.48				
FnB:						
Fox	Somewhat limited		Very limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
FnC2:						
Fox	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.04
	Frost action	0.50	Slope	0.04		
	Slope	0.04				
Ge:						
Gessie	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Frost action	0.50	Cutbanks cave	0.10		
Gf:						
Gessie	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Cutbanks cave	0.10		
GgC2:						
Gilpin	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Depth to hard bedrock	0.42	Cutbanks cave	0.10	Slope	0.04
	Slope	0.04	Slope	0.04		
GhC:						
Gilpin	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Depth to hard bedrock	0.42	Cutbanks cave	0.10	Slope	0.04
	Slope	0.04	Slope	0.04		
Tilsit	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to cemented pan	0.95
	Slope	0.04	Cutbanks cave	0.10	Depth to saturated zone	0.19
			Slope	0.04	Slope	0.04

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
GnA:						
Glenford	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Shrink-swell	0.50	Cutbanks cave	0.10		
GnB:						
Glenford	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
			Cutbanks cave	0.10		
HaB:						
Haubstadt	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to saturated zone	1.00	Depth to cemented pan	0.79
	Depth to saturated zone	0.03	Cutbanks cave	0.10	Depth to saturated zone	0.03
HaC2:						
Haubstadt	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to saturated zone	1.00	Depth to cemented pan	0.79
	Slope	0.04	Cutbanks cave	0.10	Slope	0.04
	Depth to saturated zone	0.03	Slope	0.04	Depth to saturated zone	0.03
Hd:						
Haymond	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Flooding	0.60	Flooding	0.60
	Flooding	1.00	Cutbanks cave	0.10		
HeA:						
Henshaw	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00	Depth to saturated zone	0.75
			Cutbanks cave	0.10		
HkD2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
HkE2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
Ht:						
Huntington	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Flooding	0.60
	Flooding	1.00	Flooding	0.60		
KaA:						
Kendallville	Somewhat limited		Somewhat limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
KaB:						
Kendallville	Somewhat limited		Somewhat limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
KeC2:						
Kendallville	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.04
	Frost action	0.50	Slope	0.04		
	Slope	0.04				
Eldean	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Slope	0.04	Slope	0.04
	Slope	0.04	Too clayey	0.01	Droughty	0.01
KeD2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Shrink-swell	0.50	Slope	1.00	Carbonate content	1.00
	Frost action	0.50	Too clayey	0.01	Droughty	0.08
KeE2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	1.00	Carbonate content	1.00
	Frost action	0.50	Too clayey	0.01	Droughty	0.62
Kn:						
Kinn	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Flooding	0.60
	Flooding	1.00	Depth to saturated zone	0.99		
			Flooding	0.60		
Ko:						
Kokomo	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	Cutbanks cave	0.10		
	Shrink-swell	0.50				
Kp:						
Kokomo	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	Cutbanks cave	0.10		
	Shrink-swell	0.50				

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
LfC2:						
Latham	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.42
	Shrink-swell	1.00	Slope	1.00	Slope	0.04
	Slope	0.04	Depth to soft bedrock	0.42	Depth to saturated zone	0.03
	Depth to saturated zone	0.03	Too clayey	0.12		
			Cutbanks cave	0.10		
			Slope	0.04		
LfD2:						
Latham	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	1.00	Slope	1.00	Depth to bedrock	0.42
	Slope	1.00	Depth to soft bedrock	0.42	Depth to saturated zone	0.03
	Depth to saturated zone	0.03	Too clayey	0.12		
			Cutbanks cave	0.10		
LfE:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.42
	Shrink-swell	1.00	Depth to soft bedrock	0.42	Depth to saturated zone	0.03
	Depth to saturated zone	0.03	Too clayey	0.12		
			Cutbanks cave	0.10		
LgD:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.42
	Shrink-swell	1.00	Depth to soft bedrock	0.42	Depth to saturated zone	0.03
	Depth to saturated zone	0.03	Too clayey	0.12		
			Cutbanks cave	0.10		
Wharton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.03	Depth to saturated zone	1.00	Depth to saturated zone	0.03
			Cutbanks cave	0.10		
			Depth to hard bedrock	0.05		
LrB:						
Libre	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
			Depth to dense layer	0.50		
			Cutbanks cave	0.10		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
LrC2:						
Libre	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.04
	Slope	0.04	Depth to dense layer	0.50		
			Cutbanks cave	0.10		
			Slope	0.04		
MaB:						
Markland	Very limited		Somewhat limited		Not limited	
	Shrink-swell	1.00	Depth to saturated zone	0.35		
	Frost action	0.50	Too clayey	0.12		
			Cutbanks cave	0.10		
MbC2:						
Markland	Very limited		Somewhat limited		Somewhat limited	
	Shrink-swell	1.00	Depth to saturated zone	0.35	Slope	0.04
	Frost action	0.50	Too clayey	0.12		
	Slope	0.04	Cutbanks cave	0.10		
			Slope	0.04		
MbD2:						
Markland	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	0.35		
	Frost action	0.50	Too clayey	0.12		
			Cutbanks cave	0.10		
MbE2:						
Markland	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.35		
	Frost action	0.50	Too clayey	0.12		
			Cutbanks cave	0.10		
McA:						
Martinsville	Somewhat limited		Very limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
	Flooding	0.40				
MdA:						
McGary	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	1.00	Too clayey	0.03		
MdB:						
McGary	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	1.00	Too clayey	0.03		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
MeC2:						
Mentor	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to		Slope	0.04
	Slope	0.04	saturated zone	0.15		
			Cutbanks cave	0.10		
			Slope	0.04		
MeD2:						
Mentor	Very limited		Very limited		Very limited	
	Frost action	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to			
			saturated zone	0.15		
			Cutbanks cave	0.10		
MfA:						
Mentor	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to			
	Flooding	0.40	saturated zone	0.61		
			Cutbanks cave	0.10		
MgA:						
Mentor	Very limited		Very limited		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
MgB:						
Mentor	Very limited		Very limited		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
MhB:						
Miamian	Somewhat limited		Somewhat limited		Not limited	
	Shrink-swell	0.50	Depth to			
	Frost action	0.50	saturated zone	0.95		
			Cutbanks cave	0.10		
MhB2:						
Miamian	Somewhat limited		Somewhat limited		Not limited	
	Shrink-swell	0.50	Depth to			
	Frost action	0.50	saturated zone	0.95		
			Cutbanks cave	0.10		
			Too clayey	0.01		
MhC2:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to		Slope	0.04
	Frost action	0.50	saturated zone	0.95		
	Slope	0.04	Cutbanks cave	0.10		
			Slope	0.04		
			Too clayey	0.01		
MhD2:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to			
	Frost action	0.50	saturated zone	0.95		
			Cutbanks cave	0.10		
			Too clayey	0.01		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
MhE:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.95		
	Frost action	0.50	Cutbanks cave	0.10		
			Too clayey	0.01		
MmC2:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.95	Slope	0.04
	Frost action	0.50	Cutbanks cave	0.10		
	Slope	0.04	Slope	0.04		
			Too clayey	0.01		
MmD2:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.95		
	Frost action	0.50	Cutbanks cave	0.10		
			Too clayey	0.01		
MnB:						
Miamian	Somewhat limited		Somewhat limited		Not limited	
	Shrink-swell	0.50	Depth to saturated zone	0.95		
	Frost action	0.50	Cutbanks cave	0.10		
			Too clayey	0.01		
Lewisburg	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Droughty	0.81
	Shrink-swell	0.50	Depth to dense layer	0.50	Depth to saturated zone	0.05
	Depth to saturated zone	0.05	Cutbanks cave	0.10		
MoB:						
Milton	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Frost action	0.50	Cutbanks cave	0.10		
	Depth to hard bedrock	0.42	Too clayey	0.03		
MoC2:						
Milton	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.11
	Depth to hard bedrock	0.42	Slope	0.04	Slope	0.04
	Slope	0.04	Too clayey	0.03		
MoE2:						
Milton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.14
	Depth to hard bedrock	0.42	Too clayey	0.03		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
NeC2:						
Negley	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.04
	Slope	0.04	Slope	0.04		
NeD2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Frost action	0.50	Slope	1.00		
NeE2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00		
NnA:						
Nineveh	Somewhat limited		Very limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
NnB:						
Nineveh	Somewhat limited		Very limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
ObA:						
Ockley	Somewhat limited		Very limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
ObB:						
Ockley	Somewhat limited		Very limited		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
OmB:						
Omulga	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.71
	Shrink-swell	0.50	Cutbanks cave	0.10		
OmC2:						
Omulga	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.71
	Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.04
	Slope	0.04	Slope	0.04		
Or:						
Orrville	Very limited		Very limited		Very limited	
	Frost action	1.00	Cutbanks cave	1.00	Flooding	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Depth to saturated zone	0.48	Flooding	0.80		
OwB:						
Otwell	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.10
			Cutbanks cave	0.10		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
Pc:						
Patton	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Cutbanks cave	1.00		
	Shrink-swell	0.50				
Pg:						
Peoga	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	Cutbanks cave	0.10		
PkA:						
Pike	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
PkB:						
Pike	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Cutbanks cave	0.10		
PtB:						
Princeton	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
PtC:						
Princeton	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.04
	Slope	0.04	Slope	0.04		
PtD:						
Princeton	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Frost action	0.50	Slope	1.00		
RbA:						
Rainsboro	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Depth to cemented pan	0.71
	Shrink-swell	0.50	Depth to saturated zone	0.99		
			Depth to dense layer	0.50		
RbB:						
Rainsboro	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Depth to cemented pan	0.71
	Shrink-swell	0.50	Depth to saturated zone	0.99		
			Depth to dense layer	0.50		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
RbC2:						
Rainsboro	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Depth to cemented pan	0.71
	Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	0.04
	Slope	0.04	Depth to dense layer	0.50		
			Slope	0.04		
RcF:						
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Content of large stones	0.01
Rock outcrop	Not rated		Not rated		Not rated	
RdD2:						
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
			Slope	1.00	Droughty	0.92
					Gravel content	0.07
RdE2:						
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.92
					Gravel content	0.07
Rn:						
Ross	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	0.15		
Ro:						
Rossburg	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
	Flooding	0.40				
RpA:						
Rossmoyne	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.90
	Shrink-swell	0.50	Depth to dense layer	0.50	Depth to saturated zone	0.48
	Depth to saturated zone	0.48	Cutbanks cave	0.10		
RpB:						
Rossmoyne	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.90
	Shrink-swell	0.50	Depth to dense layer	0.50	Depth to saturated zone	0.48
	Depth to saturated zone	0.48	Cutbanks cave	0.10		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
RpC2:						
Rossmoyne	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.90
	Shrink-swell	0.50	Depth to dense layer	0.50	Depth to saturated zone	0.48
	Depth to saturated zone	0.48	Cutbanks cave	0.10	Slope	0.04
	Slope	0.04	Slope	0.04		
RsB:						
Rossmoyne	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.90
	Shrink-swell	0.50	Depth to dense layer	0.50	Depth to saturated zone	0.48
	Depth to saturated zone	0.48	Cutbanks cave	0.10		
Cana	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Too clayey	0.03		
RsC2:						
Rossmoyne	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.90
	Shrink-swell	0.50	Depth to dense layer	0.50	Depth to saturated zone	0.48
	Depth to saturated zone	0.48	Cutbanks cave	0.10	Slope	0.04
	Slope	0.04	Slope	0.04		
Cana	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.04
	Shrink-swell	0.50	Cutbanks cave	0.10	Depth to saturated zone	0.03
	Slope	0.04	Slope	0.04		
	Depth to saturated zone	0.03	Too clayey	0.03		
SfD:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
			Cutbanks cave	0.10		
SgF:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
			Cutbanks cave	0.10		
Brownsville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Gravel content	0.62
			Depth to hard bedrock	0.04	Content of large stones	0.03

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
ShE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
			Cutbanks cave	0.10		
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	0.50	Too clayey	0.12		
	Depth to saturated zone	0.03	Cutbanks cave	0.10		
Weikert	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
	Depth to hard bedrock	1.00	Slope	1.00	Droughty	1.00
	Frost action	0.50	Cutbanks cave	0.10	Depth to bedrock	1.00
SkE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Depth to hard bedrock	0.42		
			Cutbanks cave	0.10		
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Gravel content	0.22
					Content of large stones	0.01
Sp:						
Skidmore	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
			Depth to saturated zone	0.82	Gravel content	0.36
			Flooding	0.60	Droughty	0.11
					Content of large stones	0.01
St:						
Sloan	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	Flooding	0.60
	Flooding	1.00	Flooding	0.60		
	Shrink-swell	0.50				
SuB:						
Spargus	Somewhat limited		Somewhat limited		Very limited	
	Frost action	0.50	Depth to saturated zone	0.15	Gravel content	1.00
	Flooding	0.20	Cutbanks cave	0.10	Droughty	0.01
Sv:						
Stonelick	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
	Frost action	0.50	Flooding	0.60		

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
Sw:						
Stonelick	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80		
TbA:						
Taggart	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Depth to saturated zone	0.94	Cutbanks cave	0.10		
	Shrink-swell	0.44				
ThC3:						
Thrifton	Somewhat limited		Very limited		Very limited	
	Frost action	0.50	Depth to saturated zone	1.00	Droughty	1.00
	Shrink-swell	0.44	Depth to dense layer	0.50	Carbonate content	1.00
	Slope	0.04	Cutbanks cave	0.10	Slope	0.04
			Slope	0.04		
ThD3:						
Thrifton	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	Droughty	1.00
	Shrink-swell	0.44	Depth to dense layer	0.50	Carbonate content	1.00
			Cutbanks cave	0.10		
ThE3:						
Thrifton	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	Droughty	1.00
			Depth to dense layer	0.50	Carbonate content	1.00
			Cutbanks cave	0.10		
TnA:						
Tilsit	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00	Depth to cemented pan	0.95
			Cutbanks cave	0.10	Depth to saturated zone	0.19
To:						
Tioga	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Flooding	0.80	Flooding	1.00
	Frost action	0.50	Depth to saturated zone	0.35		
			Cutbanks cave	0.10		
TyA:						
Tyler	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Depth to saturated zone	0.94	Cutbanks cave	1.00	Depth to cemented pan	0.01
Ud:						
Udorthents	Not rated		Not rated		Not rated	

Table 17b.--Building Site Development--Continued

Map symbol and soil name	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
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
Wk:						
Westland	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	Cutbanks cave	1.00		
	Shrink-swell	0.50	Depth to dense layer	0.50		
WtB:						
Wyatt	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
	Shrink-swell	1.00	Too clayey	0.12		
	Depth to saturated zone	0.03	Cutbanks cave	0.10		
WyC2:						
Wyatt	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.04
	Shrink-swell	1.00	Too clayey	0.12	Depth to saturated zone	0.03
	Slope	0.04	Cutbanks cave	0.10		
	Depth to saturated zone	0.03	Slope	0.04		
WyD2:						
Wyatt	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	1.00
	Shrink-swell	1.00	Slope	1.00	Depth to saturated zone	0.03
	Slope	1.00	Too clayey	0.12		
	Depth to saturated zone	0.03	Cutbanks cave	0.10		

Table 18.--Sanitary Facilities

(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 potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
Aa:										
Adrian	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Subsidence	1.00			Too sandy	1.00			Seepage	1.00
AcC2:										
Alexandria	Very limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	1.00	Slope	1.00	Too clayey	0.50	Slope	0.04	Too clayey	0.50
	Depth to saturated zone	1.00	Depth to saturated zone	0.71	Slope	0.04			Slope	0.04
	Slope	0.04								
AcD2:										
Alexandria	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	0.71	Too clayey	0.50			Too clayey	0.50
	Depth to saturated zone	1.00								
AcE2:										
Alexandria	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.71	Too clayey	0.50			Too clayey	0.50
	Depth to saturated zone	1.00								
AeE2:										
Alexandria	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.71	Too clayey	0.50			Too clayey	0.50
	Depth to saturated zone	1.00								

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
AeE2:										
Fox	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.46							Gravel content	0.01
AvA:										
Avonburg	Very limited		Not limited		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
	Depth to saturated zone	1.00			Too clayey	0.50			Too clayey	0.50
AvB:										
Avonburg	Very limited		Somewhat limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	0.33	Depth to saturated zone	1.00	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
BeD:										
Berks	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
	Slope	1.00	Seepage	1.00	Slope	1.00	Depth to bedrock	1.00	Slope	1.00
			Depth to hard bedrock	1.00			Slope	1.00	Gravel content	0.70
									Seepage	0.22
BeE:										
Berks	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
			Depth to hard bedrock	1.00			Depth to bedrock	1.00	Gravel content	0.77
									Seepage	0.22
BgC:										
Berks	Very limited		Very limited		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	0.37	Depth to hard bedrock	1.00	Slope	0.37	Depth to bedrock	1.00	Gravel content	0.77
			Slope	1.00			Slope	0.37	Slope	0.37
									Seepage	0.22

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
BgC:										
Tarhollow	Very limited		Very limited		Very limited		Somewhat limited		Somewhat limited	
	Restricted permeability	1.00	Slope	1.00	Depth to bedrock	1.00	Slope	0.37	Slope	0.37
	Depth to saturated zone	1.00	Depth to saturated zone	0.96	Depth to saturated zone	0.68	Depth to saturated zone	0.04	Depth to saturated zone	0.25
	Slope	0.37	Seepage	0.53	Slope	0.37				
	Depth to bedrock	0.25								
CaB:										
Cana	Very limited		Somewhat limited		Very limited		Somewhat limited		Somewhat limited	
	Restricted permeability	1.00	Depth to saturated zone	0.56	Depth to bedrock	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Depth to saturated zone	1.00	Depth to soft bedrock	0.42	Depth to saturated zone	0.96	Depth to bedrock	0.42	Too clayey	0.50
	Depth to bedrock	0.78	Slope	0.33	Too clayey	0.50			Depth to bedrock	0.42
			Seepage	0.28						
CaC2:										
Cana	Very limited		Very limited		Very limited		Somewhat limited		Somewhat limited	
	Restricted permeability	1.00	Slope	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.96	Depth to bedrock	0.42	Too clayey	0.50
	Depth to bedrock	0.78	Depth to soft bedrock	0.42	Too clayey	0.50	Slope	0.04	Depth to bedrock	0.42
	Slope	0.04	Seepage	0.28	Slope	0.04			Slope	0.04
CaD2:										
Cana	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to bedrock	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	0.56	Slope	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Depth to bedrock	0.78	Depth to soft bedrock	0.42	Depth to saturated zone	0.96	Depth to bedrock	0.42	Too clayey	0.50
	Restricted permeability	0.72	Seepage	0.28	Too clayey	0.50			Depth to bedrock	0.42
CaE2:										
Cana	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Depth to bedrock	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Slope	1.00	Depth to soft bedrock	0.42	Depth to saturated zone	0.96	Depth to bedrock	0.42	Too clayey	0.50
	Depth to bedrock	0.78	Seepage	0.28	Too clayey	0.50			Depth to bedrock	0.42

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
Cd:										
Carlisle	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capcity	1.00	Depth to saturated zone	1.00	Seepage	1.00	Seepage	1.00	Content of organic matter	1.00
	Subsidence	1.00	Content of organic matter	1.00	Content of organic matter	1.00			Seepage	0.16
CeD:										
Casco	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00	Slope	1.00	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00	Too clayey	0.50	Slope	1.00	Too clayey	0.50
									Gravel content	0.08
Rodman	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Slope	1.00	Seepage	1.00	Too sandy	1.00	Slope	1.00	Seepage	1.00
					Slope	1.00			Slope	1.00
									Gravel content	1.00
CgA:										
Celina	Very limited		Somewhat limited		Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to saturated zone	0.44	Too clayey	1.00
			Seepage	0.53	Depth to saturated zone	0.96			Depth to saturated zone	0.68
CgB:										
Celina	Very limited		Somewhat limited		Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to saturated zone	0.44	Too clayey	1.00
			Seepage	0.53	Depth to saturated zone	0.96			Depth to saturated zone	0.68
			Slope	0.33						
CgB2:										
Celina	Very limited		Somewhat limited		Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to saturated zone	0.44	Too clayey	1.00
			Slope	0.33	Depth to saturated zone	0.96			Depth to saturated zone	0.68
ChA:										
Chavies	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Flooding	0.40	Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.52
			Flooding	0.40	Flooding	0.40	Flooding	0.40		

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
CmA:										
Cidermill	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.46								
CmB:										
Cidermill	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.33						
Cp:										
Clifty	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Filtering capacity	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00	Gravel content	0.30
CrA:										
Coolville	Very limited		Somewhat limited		Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Depth to bedrock	1.00	Depth to saturated zone	0.44	Too clayey	1.00
	Depth to bedrock	0.78	Seepage	0.53	Too clayey	1.00	Depth to bedrock	0.42	Hard to compact	1.00
	Restricted permeability	0.46	Depth to soft bedrock	0.42	Depth to saturated zone	0.96			Depth to saturated zone	0.68
									Depth to bedrock	0.42
CrB:										
Coolville	Very limited		Somewhat limited		Very limited		Somewhat limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	0.56	Depth to bedrock	1.00	Depth to saturated zone	0.44	Too clayey	1.00
	Depth to saturated zone	1.00	Seepage	0.53	Too clayey	1.00	Depth to bedrock	0.42	Hard to compact	1.00
	Depth to bedrock	0.78	Depth to soft bedrock	0.42	Depth to saturated zone	0.96			Depth to saturated zone	0.68
			Slope	0.33					Depth to bedrock	0.42
CrC2:										
Coolville	Very limited		Very limited		Very limited		Somewhat limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.44	Too clayey	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to bedrock	0.42	Hard to compact	1.00
	Depth to bedrock	0.78	Seepage	0.53	Depth to saturated zone	0.96	Slope	0.04	Depth to saturated zone	0.68
	Slope	0.04	Depth to soft bedrock	0.42	Slope	0.04			Depth to bedrock	0.42
									Slope	0.04

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
CvA:										
Crosby	Very limited		Not limited		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 saturated zone	1.00
					Too clayey	0.50			Too clayey	0.50
CvB:										
Crosby	Very limited		Somewhat limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	0.33	Depth to saturated zone	1.00	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
CwC2:										
Cruze	Very limited		Very limited		Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.44	Too clayey	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to bedrock	0.13	Hard to compact	1.00
	Depth to bedrock	0.59	Depth to soft bedrock	0.13	Depth to saturated zone	0.96	Slope	0.04	Depth to saturated zone	0.68
	Slope	0.04			Slope	0.04			Depth to bedrock	0.13
									Slope	0.04
CwD:										
Cruze	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Depth to bedrock	1.00	Slope	1.00	Too clayey	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to saturated zone	0.44	Slope	1.00
	Slope	1.00	Depth to soft bedrock	0.13	Slope	1.00	Depth to bedrock	0.13	Hard to compact	1.00
	Depth to bedrock	0.59			Depth to saturated zone	0.96			Depth to saturated zone	0.68
									Depth to bedrock	0.13
CwE:										
Cruze	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Depth to bedrock	1.00	Depth to saturated zone	0.44	Too clayey	1.00
	Slope	1.00	Depth to soft bedrock	0.13	Too clayey	1.00	Depth to bedrock	0.13	Hard to compact	1.00
	Depth to bedrock	0.59			Depth to saturated zone	0.96			Depth to saturated zone	0.68
									Depth to bedrock	0.13
DAM:										
Dam	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
EeA:										
Eldean	Somewhat limited		Very limited		Very limited		Very limited		Very limited	
	Restricted		Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	permeability	0.72								
EeB:										
Eldean	Somewhat limited		Very limited		Very limited		Very limited		Very limited	
	Restricted		Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	permeability	0.72	Slope	0.33						
EeC2:										
Eldean	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering		Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	capacity	1.00	Slope	1.00	Slope	0.04	Slope	0.04	Slope	0.04
	Restricted									
	permeability	0.72								
	Slope	0.04								
EgA:										
Eldean	Somewhat limited		Very limited		Very limited		Very limited		Very limited	
	Restricted		Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	permeability	0.72								
EgB:										
Eldean	Somewhat limited		Very limited		Very limited		Very limited		Very limited	
	Restricted		Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	permeability	0.72	Slope	0.33						
EgC2:										
Eldean	Somewhat limited		Very limited		Very limited		Very limited		Very limited	
	Restricted		Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	permeability	0.72	Slope	1.00	Slope	0.04	Slope	0.04	Slope	0.04
	Slope	0.04								
ErD:										
Ernest	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to cemented		Depth to cemented		Slope	1.00	Slope	1.00	Depth to cemented	
	pan	1.00	pan	1.00	Depth to		Depth to cemented		pan	1.00
	Depth to		Slope	1.00	saturated zone	0.96	pan	1.00	Slope	1.00
	saturated zone	1.00	Depth to		Too clayey	0.50	Depth to		Depth to	
	Slope	1.00	saturated zone	0.56			saturated zone	0.44	saturated zone	0.68
			Seepage	0.53					Too clayey	0.50

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
EuA:										
Euclid	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Restricted permeability	1.00	Flooding	0.40	Too clayey	0.50	Flooding	0.40	Too clayey	0.50
	Flooding	0.40			Flooding	0.40				
FhA:										
Fitchville	Very limited		Somewhat limited		Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.28	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96
	Restricted permeability	1.00	Depth to saturated zone	0.06						
FhB:										
Fitchville	Very limited		Somewhat limited		Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	0.33	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	0.96
	Restricted permeability	1.00	Seepage	0.28						
			Depth to saturated zone	0.06						
FnB:										
Fox	Very limited		Very limited		Somewhat limited		Very limited		Somewhat limited	
	Filtering capacity	1.00	Seepage	1.00	Too clayey	0.50	Seepage	1.00	Too clayey	0.50
	Restricted permeability	0.46	Slope	0.33						
FnC2:										
Fox	Somewhat limited		Very limited		Somewhat limited		Very limited		Somewhat limited	
	Slope	0.04	Seepage	1.00	Too clayey	0.50	Seepage	1.00	Too clayey	0.50
			Slope	1.00	Slope	0.04	Slope	0.04	Slope	0.04
Ge:										
Gessie	Very limited		Very limited		Very limited		Very limited		Not limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00		
	Restricted permeability	0.46	Seepage	0.53						
Gf:										
Gessie	Very limited		Very limited		Very limited		Very limited		Not limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00		
	Restricted permeability	0.46	Seepage	0.53						

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	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
GgC2:										
Gilpin	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	0.04	Slope	1.00	Slope	0.04	Slope	0.04	Gravel content	0.11
			Seepage	0.53					Slope	0.04
GhC:										
Gilpin	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Restricted permeability	0.46	Slope	1.00	Slope	0.04	Slope	0.04	Slope	0.04
	Slope	0.04	Seepage	0.53					Gravel content	0.03
Tilsit	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to bedrock	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75	Hard to compact	1.00
	Depth to bedrock	0.25	Seepage	0.53	Slope	0.04	Slope	0.04	Depth to saturated zone	0.86
	Slope	0.04	Depth to saturated zone	0.25					Slope	0.04
GnA:										
Glenford	Very limited		Somewhat limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.96	Depth to saturated zone	0.68	Depth to saturated zone	0.04	Too clayey	0.50
	Restricted permeability	1.00	Seepage	0.28	Too clayey	0.50			Depth to saturated zone	0.25
GnB:										
Glenford	Very limited		Somewhat limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.96	Depth to saturated zone	0.68	Depth to saturated zone	0.04	Depth to saturated zone	0.25
	Restricted permeability	1.00	Slope	0.33						
			Seepage	0.28						
HaB:										
Haubstadt	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56			Depth to saturated zone	0.44	Depth to saturated zone	0.68
			Seepage	0.53						
			Slope	0.33						

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
HaC2:										
Haubstadt	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00	Slope	0.04	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Restricted permeability	0.46	Depth to saturated zone	0.56			Slope	0.04	Slope	0.04
	Slope	0.04	Seepage	0.53						
Hd:										
Haymond	Very limited		Very limited		Very limited		Very limited		Not limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00		
	Restricted permeability	0.46	Seepage	0.53						
HeA:										
Henshaw	Very limited		Very limited		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 saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Slope	0.01	Too clayey	0.50			Too clayey	0.50
HkD2:										
Hickory	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
HkE2:										
Hickory	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
Ht:										
Huntington	Very limited		Very limited		Very limited		Very limited		Not limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00		
	Restricted permeability	0.46	Seepage	0.53						
KaA:										
Kendallville	Very limited		Somewhat limited		Not limited		Not limited		Not limited	
	Restricted permeability	1.00	Seepage	0.53						

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
KaB:										
Kendallville	Very limited		Somewhat limited		Not limited		Not limited		Not limited	
	Restricted		Seepage	0.53						
	permeability	1.00	Slope	0.33						
KeC2:										
Kendallville	Very limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted		Slope	1.00	Slope	0.04	Slope	0.04	Slope	0.04
	permeability	1.00	Seepage	0.53						
	Slope	0.04								
Eldean	Somewhat limited		Very limited		Very limited		Very limited		Very limited	
	Slope	0.04	Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
			Slope	1.00	Slope	0.04	Slope	0.04	Slope	0.04
KeD2:										
Kendallville	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted		Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	permeability	1.00	Seepage	0.53						
	Slope	1.00								
Eldean	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
			Seepage	1.00	Slope	1.00	Slope	1.00	Slope	1.00
KeE2:										
Kendallville	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted		Seepage	0.53						
	permeability	1.00								
Eldean	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering		Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	capacity	1.00	Seepage	1.00	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
	Slope	1.00							Gravel content	0.06
Kn:										
Kinn	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Carbonate content	1.00
	Depth to		Depth to		Depth to	1.00	Depth to		Depth to	
	saturated zone	1.00	saturated zone	1.00	saturated zone		saturated zone	1.00	saturated zone	0.25
	Restricted		Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.01
	permeability	1.00								

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
Ko:										
Kokomo	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00			Too clayey	0.50			Hard to compact	1.00
									Too clayey	0.50
Kp:										
Kokomo	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00								
LfC2:										
Latham	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
	Depth to bedrock	1.00	Slope	1.00	Too clayey	1.00	Depth to saturated zone	0.44	Depth to bedrock	1.00
	Slope	0.04	Depth to saturated zone	0.56	Depth to saturated zone	0.96	Slope	0.04	Hard to compact	1.00
					Slope	0.04			Depth to saturated zone	0.68
									Slope	0.04
LfD2:										
Latham	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
	Depth to bedrock	1.00	Depth to soft bedrock	1.00	Too clayey	1.00	Slope	1.00	Depth to bedrock	1.00
	Slope	1.00	Depth to saturated zone	0.56	Slope	1.00	Depth to saturated zone	0.44	Slope	1.00
					Depth to saturated zone	0.96			Hard to compact	1.00
									Depth to saturated zone	0.68
LfE:										
Latham	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
	Depth to bedrock	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to saturated zone	0.44	Depth to bedrock	1.00
					Depth to saturated zone	0.96			Hard to compact	1.00
									Depth to saturated zone	0.68

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value	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
LgD:										
Latham	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
	Depth to bedrock	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to saturated zone	0.44	Depth to bedrock	1.00
					Depth to saturated zone	0.96			Hard to compact	1.00
									Depth to saturated zone	0.68
Wharton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Depth to bedrock	0.47	Depth to saturated zone	0.56	Depth to saturated zone	0.96	Depth to bedrock	0.05	Too clayey	0.50
	Restricted permeability	0.46	Depth to hard bedrock	0.05	Too clayey	0.50			Depth to bedrock	0.05
									Gravel content	0.01
LrB:										
Libre	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00	Gravel content	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.96	Depth to saturated zone	0.68	Depth to saturated zone	0.04	Depth to saturated zone	0.25
			Slope	0.33					Seepage	0.01
LrC2:										
Libre	Very limited		Very limited		Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	0.68	Slope	0.04	Gravel content	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.96	Slope	0.04	Depth to saturated zone	0.04	Depth to saturated zone	0.25
	Slope	0.04	Seepage	0.51					Slope	0.04
MaB:										
Markland	Very limited		Somewhat limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	0.33	Too clayey	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	0.84	Depth to saturated zone	0.17	Depth to saturated zone	1.00			Hard to compact	1.00

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
MbC2:										
Markland	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Too clayey	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	0.84	Depth to saturated zone	0.17	Depth to saturated zone	1.00	Slope	0.04	Hard to compact	1.00
	Slope	0.04			Slope	0.04			Slope	0.04
MbD2:										
Markland	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Too clayey	1.00	Slope	1.00	Too clayey	1.00
	Slope	1.00	Depth to saturated zone	0.17	Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.84			Depth to saturated zone	1.00			Hard to compact	1.00
MbE2:										
Markland	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.17	Too clayey	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	0.84			Depth to saturated zone	1.00			Hard to compact	1.00
McA:										
Martinsville	Somewhat limited		Somewhat limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50	Flooding	0.40	Too clayey	0.50
	Flooding	0.40	Flooding	0.40	Flooding	0.40				
MdA:										
McGary	Very limited		Not limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00			Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	1.00			Too clayey	1.00			Depth to saturated zone	1.00
									Hard to compact	1.00
MdB:										
McGary	Very limited		Somewhat limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	0.33	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	1.00			Too clayey	1.00			Depth to saturated zone	1.00
									Hard to compact	1.00

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
MeC2:										
Mentor	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Seepage	0.53	Too clayey	0.50	Slope	0.04	Slope	0.04
	Slope	0.04			Slope	0.04				
MeD2:										
Mentor	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40			Too clayey	0.50				
MfA:										
Mentor	Very limited		Somewhat limited		Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.71	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50	Flooding	0.40		
	Flooding	0.40	Flooding	0.40	Flooding	0.40				
MgA:										
Mentor	Somewhat limited		Somewhat limited		Very limited		Not limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Seepage	1.00			Too clayey	0.50
					Too clayey	0.50				
MgB:										
Mentor	Somewhat limited		Very limited		Very limited		Not limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	1.00	Seepage	1.00			Too clayey	0.50
			Slope	0.33	Too clayey	0.50				
MhB:										
Miamian	Very limited		Very limited		Somewhat limited		Not limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.44			Depth to saturated zone	0.09
	Restricted permeability	1.00	Slope	0.33						

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
MhB2:										
Miamian	Very limited		Very limited		Somewhat limited		Not limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50			Too clayey	0.50
	Restricted permeability	1.00	Slope	0.33	Depth to saturated zone	0.44			Depth to saturated zone	0.09
MhC2:										
Miamian	Very limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	1.00	Too clayey	0.50	Slope	0.04	Too clayey	0.50
	Restricted permeability	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.44			Depth to saturated zone	0.09
	Slope	0.04			Slope	0.04			Slope	0.04
MhD2:										
Miamian	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.44			Depth to saturated zone	0.09
MhE:										
Miamian	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00	Too clayey	0.50			Too clayey	0.50
					Depth to saturated zone	0.44			Depth to saturated zone	0.09
MmC2:										
Miamian	Very limited		Very limited		Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to bedrock	1.00	Depth to bedrock	0.42	Too clayey	0.50
	Depth to bedrock	0.78	Depth to saturated zone	1.00	Too clayey	0.50	Slope	0.04	Depth to bedrock	0.42
	Slope	0.04	Depth to soft bedrock	0.42	Depth to saturated zone	0.44			Depth to saturated zone	0.09
					Slope	0.04			Slope	0.04
MmD2:										
Miamian	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to bedrock	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00	Slope	1.00	Depth to bedrock	0.42	Too clayey	0.50
	Slope	1.00	Depth to soft bedrock	0.42	Too clayey	0.50			Depth to bedrock	0.42
	Depth to bedrock	0.78			Depth to saturated zone	0.44			Depth to saturated zone	0.09

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
MnB:										
Miamian	Very limited		Very limited		Somewhat limited		Not limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50			Too clayey	0.50
			Slope	0.33	Depth to saturated zone	0.44			Depth to saturated zone	0.09
Lewisburg	Very limited		Somewhat limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.52	Depth to saturated zone	0.96	Depth to saturated zone	0.48	Depth to saturated zone	0.71
			Slope	0.33	Too clayey	0.50			Too clayey	0.50
			Seepage	0.28						
MoB:										
Milton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Slope	0.33	Too clayey	0.50			Hard to compact	1.00
			Seepage	0.28					Too clayey	0.50
MoC2:										
Milton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
	Depth to bedrock	1.00	Slope	1.00	Too clayey	1.00	Slope	0.04	Depth to bedrock	1.00
	Slope	0.04	Seepage	0.28	Slope	0.04			Hard to compact	1.00
									Slope	0.04
MoE2:										
Milton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
	Depth to bedrock	1.00	Seepage	0.28	Too clayey	1.00			Depth to bedrock	1.00
									Hard to compact	1.00
NeC2:										
Negley	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Slope	0.04	Slope	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.22
			Seepage	1.00	Slope	0.04	Slope	0.04	Slope	0.04
									Gravel content	0.02
NeD2:										
Negley	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
			Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.22
									Gravel content	0.01

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
NeE2:										
Negley	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
			Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.22
									Gravel content	0.01
NnA:										
Nineveh	Not limited		Very limited		Not limited		Very limited		Not limited	
			Seepage	1.00			Seepage	1.00		
NnB:										
Nineveh	Not limited		Very limited		Somewhat limited		Very limited		Somewhat limited	
			Seepage	1.00	Too clayey	0.50	Seepage	1.00	Too clayey	0.50
			Slope	0.33						
ObA:										
Ockley	Very limited		Very limited		Not limited		Very limited		Somewhat limited	
	Filtering capacity	1.00	Seepage	1.00			Seepage	1.00	Seepage	0.22
									Gravel content	0.02
ObB:										
Ockley	Very limited		Very limited		Not limited		Very limited		Somewhat limited	
	Filtering capacity	1.00	Seepage	1.00			Seepage	1.00	Seepage	0.22
			Slope	0.33					Gravel content	0.01
OmB:										
Omulga	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.68	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.96	Too clayey	0.50	Depth to saturated zone	0.32	Too clayey	0.50
			Seepage	0.53					Depth to saturated zone	0.25
			Slope	0.33						
OmC2:										
Omulga	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.68	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00	Too clayey	0.50	Depth to saturated zone	0.32	Too clayey	0.50
	Restricted permeability	0.46	Depth to saturated zone	0.96	Slope	0.04	Slope	0.04	Depth to saturated zone	0.25
	Slope	0.04	Seepage	0.53					Slope	0.04

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
Or:										
Orrville	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.96
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	0.50
	Restricted permeability	0.46	Seepage	1.00	Too sandy	1.00	Seepage	1.00	Seepage	0.22
					Seepage	1.00				
OwB:										
Otwell	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.68	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.96	Too clayey	0.50	Depth to saturated zone	0.32	Too clayey	0.50
	Depth to cemented pan	1.00	Slope	0.33					Depth to saturated zone	0.25
Pc:										
Patton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
Pg:										
Peoga	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00								
PkA:										
Pike	Somewhat limited		Somewhat limited		Somewhat limited		Not limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
PkB:										
Pike	Somewhat limited		Somewhat limited		Somewhat limited		Not limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
			Slope	0.33						
Pn:										
Pits, gravel	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
Po:										
Pits, quarry	Not rated		Not rated		Not rated		Not rated		Not rated	
Pp:										
Pope	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Seepage	0.22
			Seepage	1.00	Seepage	1.00	Seepage	1.00		
			Slope	0.01						
PtB:										
Princeton	Not limited		Very limited		Very limited		Very limited		Somewhat limited	
			Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.52
			Slope	0.33	Too sandy	1.00			Too sandy	0.50
PtC:										
Princeton	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Slope	0.04	Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.52
			Slope	1.00	Too sandy	1.00	Slope	0.04	Too sandy	0.50
					Slope	0.04			Slope	0.04
PtD:										
Princeton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Seepage	1.00	Seepage	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	1.00	Too sandy	1.00	Slope	1.00	Seepage	0.52
					Slope	1.00			Too sandy	0.50
RbA:										
Rainsboro	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.68	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.96			Depth to saturated zone	0.32	Depth to saturated zone	0.25
			Seepage	0.28						
RbB:										
Rainsboro	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.68	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.96			Depth to saturated zone	0.32	Depth to saturated zone	0.25
			Slope	0.33						
			Seepage	0.28						

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
RbC2:										
Rainsboro	Very limited		Very limited		Somewhat limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	0.68	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00	Slope	0.04	Depth to saturated zone	0.32	Depth to saturated zone	0.25
	Slope	0.04	Depth to saturated zone	0.96			Slope	0.04	Slope	0.04
			Seepage	0.28						
RcF:										
Rigley	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	0.01	Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00	Seepage	0.52
									Gravel content	0.01
Rock outcrop	Not rated		Not rated		Not rated		Not rated		Not rated	
RdD2:										
Rodman	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Slope	1.00	Seepage	1.00	Too sandy	1.00	Slope	1.00	Seepage	1.00
					Slope	1.00			Slope	1.00
									Gravel content	1.00
RdE2:										
Rodman	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00	Too sandy	1.00
					Too sandy	1.00			Seepage	1.00
									Gravel content	1.00
Rn:										
Ross	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Seepage	0.22
	Restricted permeability	0.46	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	0.40			Seepage	1.00				
Ro:										
Rossburg	Very limited		Very limited		Very limited		Somewhat limited		Not limited	
	Filtering capacity	1.00	Seepage	1.00	Seepage	1.00	Flooding	0.40		
			Flooding	0.40	Flooding	0.40				
	Restricted permeability	0.46								
	Flooding	0.40								

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
RpA:										
Rossmoyne	Very limited Depth to cemented pan Depth to saturated zone	 1.00 1.00	Very limited Depth to cemented pan Seepage Depth to saturated zone	 1.00 0.53 0.06	Very limited Depth to saturated zone Too clayey	 1.00 0.50	Very limited Depth to cemented pan Depth to saturated zone	 1.00 0.94	Very limited Depth to cemented pan Depth to saturated zone Too clayey	 1.00 0.96 0.50
RpB:										
Rossmoyne	Very limited Depth to cemented pan Depth to saturated zone	 1.00 1.00	Very limited Depth to cemented pan Seepage Slope Depth to saturated zone	 1.00 0.53 0.33 0.06	Very limited Depth to saturated zone Too clayey	 1.00 0.50	Very limited Depth to cemented pan Depth to saturated zone	 1.00 0.94	Very limited Depth to cemented pan Depth to saturated zone Too clayey	 1.00 0.96 0.50
RpC2:										
Rossmoyne	Very limited Depth to cemented pan Depth to saturated zone Slope	 1.00 1.00 0.04	Very limited Depth to cemented pan Slope Seepage Depth to saturated zone	 1.00 1.00 0.53 0.06	Very limited Depth to saturated zone Too clayey Slope	 1.00 0.50 0.04	Very limited Depth to cemented pan Depth to saturated zone Slope	 1.00 0.94 0.04	Very limited Depth to cemented pan Depth to saturated zone Too clayey Slope	 1.00 0.96 0.50 0.04
RsB:										
Rossmoyne	Very limited Depth to cemented pan Depth to saturated zone	 1.00 1.00	Very limited Depth to cemented pan Seepage Slope Depth to saturated zone	 1.00 0.53 0.33 0.06	Very limited Depth to saturated zone Too clayey	 1.00 0.50	Very limited Depth to cemented pan Depth to saturated zone	 1.00 0.94	Very limited Depth to cemented pan Depth to saturated zone Too clayey	 1.00 0.96 0.50
Cana	Very limited Depth to saturated zone Depth to bedrock Restricted permeability	 1.00 0.78 0.72	Somewhat limited Depth to saturated zone Depth to soft bedrock Slope Seepage	 0.56 0.42 0.33 0.28	Very limited Depth to bedrock Depth to saturated zone Too clayey	 1.00 0.96 0.50	Somewhat limited Depth to saturated zone Depth to bedrock	 0.44 0.42	Somewhat limited Depth to saturated zone Too clayey Depth to bedrock	 0.68 0.50 0.42

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
RsC2:										
Rossmoyne	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Slope	1.00	Too clayey	0.50	Depth to saturated zone	0.94	Depth to saturated zone	0.96
	Slope	0.04	Seepage	0.53	Slope	0.04	Slope	0.04	Too clayey	0.50
			Depth to saturated zone	0.06					Slope	0.04
Cana	Very limited		Very limited		Very limited		Somewhat limited		Somewhat limited	
	Restricted permeability	1.00	Slope	1.00	Depth to bedrock	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.96	Depth to bedrock	0.42	Too clayey	0.50
	Depth to bedrock	0.78	Depth to soft bedrock	0.42	Too clayey	0.50	Slope	0.04	Depth to bedrock	0.42
	Slope	0.04	Seepage	0.28	Slope	0.04			Slope	0.04
SfD:										
Shelocta	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Depth to bedrock	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	0.78	Seepage	1.00	Slope	1.00	Depth to bedrock	0.42	Too clayey	0.50
	Restricted permeability	0.46	Depth to hard bedrock	0.42	Too clayey	0.50			Depth to bedrock	0.42
SgF:										
Shelocta	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	0.78	Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	0.42	Too clayey	0.50
			Depth to hard bedrock	0.42	Too clayey	0.50			Depth to bedrock	0.42
Brownsville	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00	Gravel content	0.41
	Depth to bedrock	0.45	Depth to hard bedrock	0.04			Depth to bedrock	0.04	Seepage	0.22
									Depth to bedrock	0.04
ShE:										
Shelocta	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	0.78	Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	0.42	Too clayey	0.50
			Depth to hard bedrock	0.42	Too clayey	0.50			Depth to bedrock	0.42

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
ShE:										
Cruze	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Depth to bedrock	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
	Slope	1.00	Depth to soft bedrock	0.13	Depth to saturated zone	0.96	Depth to bedrock	0.13	Depth to bedrock	0.13
	Depth to bedrock	0.59								
Weikert	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	Slope	1.00	Slope	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	0.02
SkE:										
Shelocta	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	0.78	Seepage	1.00	Depth to bedrock	1.00	Depth to bedrock	0.42	Too clayey	0.50
	Restricted permeability	0.46	Depth to hard bedrock	0.42	Too clayey	0.50			Depth to bedrock	0.42
Rigley	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	0.01	Seepage	1.00	Depth to bedrock	1.00	Seepage	1.00	Seepage	0.52
									Gravel content	0.01
Sp:										
Skidmore	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Gravel content	0.91
	Depth to saturated zone	1.00	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.52
	Depth to bedrock	0.27	Depth to saturated zone	1.00	Depth to bedrock	1.00	Seepage	1.00		
St:										
Sloan	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	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	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Restricted permeability	0.72	Seepage	0.28	Too clayey	0.50				

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
SuB:										
Spargus	Somewhat limited		Somewhat limited		Very limited		Very limited		Very limited	
	Restricted permeability	0.48	Seepage	0.51	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	1.00
	Depth to saturated zone	0.40	Slope	0.33	Flooding	0.20	Flooding	0.20		
	Flooding	0.20	Flooding	0.20						
Sv:										
Stonelick	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Seepage	0.52
			Seepage	1.00	Seepage	1.00	Seepage	1.00		
Sw:										
Stonelick	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Seepage	0.52
			Seepage	1.00	Seepage	1.00	Seepage	1.00		
TbA:										
Taggart	Very limited		Very limited		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	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
ThC3:										
Thrifton	Very limited		Very limited		Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Carbonate content	1.00
	Slope	0.04	Depth to saturated zone	0.81	Too clayey	0.50	Slope	0.04	Too clayey	0.50
					Slope	0.04			Depth to saturated zone	0.47
									Slope	0.04
ThD3:										
Thrifton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	0.81	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Carbonate content	1.00
					Too clayey	0.50			Too clayey	0.50
									Depth to saturated zone	0.47

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
ThE3:										
Thrifton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	0.81	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Carbonate content	1.00
					Too clayey	0.50			Too clayey	0.50
									Depth to saturated zone	0.47
TnA:										
Tilsit	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to bedrock	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.86
	Depth to bedrock	0.25	Depth to saturated zone	0.25						
To:										
Tioga	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Filtering capacity	1.00	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Gravel content	0.01
	Depth to saturated zone	0.84	Depth to saturated zone	0.17	Seepage	1.00	Seepage	1.00		
TyA:										
Tyler	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00			Too clayey	0.50	Depth to cemented pan	1.00	Depth to cemented pan	1.00
									Too clayey	0.50
Ud:										
Udorthents	Not rated		Not rated		Not rated		Not rated		Not rated	
W:										
Water	Not rated		Not rated		Not rated		Not rated		Not rated	
WcA:										
Warsaw	Very limited		Very limited		Not limited		Very limited		Not limited	
	Filtering capacity	1.00	Seepage	1.00			Seepage	1.00		
	Restricted permeability	0.46								

Table 18.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		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	Rating class and limiting features	Value	Rating class and limiting features	Value
Wk:										
Westland	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Depth to saturated zone		Seepage	1.00			Too clayey	0.50
	Restricted permeability	0.46			Too clayey	0.50				
WtB:										
Wyatt	Very limited		Somewhat limited		Very limited		Somewhat limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	0.56	Too clayey	1.00	Depth to saturated zone	0.44	Too clayey	1.00
	Depth to saturated zone	1.00	Slope	0.33	Depth to saturated zone	0.96			Hard to compact	1.00
									Depth to saturated zone	0.68
WyC2:										
Wyatt	Very limited		Very limited		Very limited		Somewhat limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Too clayey	1.00	Depth to saturated zone	0.44	Too clayey	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Depth to saturated zone	0.96	Slope	0.04	Hard to compact	1.00
	Slope	0.04			Slope	0.04			Depth to saturated zone	0.68
									Slope	0.04
WyD2:										
Wyatt	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Too clayey	1.00	Slope	1.00	Too clayey	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.56	Slope	1.00	Depth to saturated zone	0.44	Slope	1.00
	Slope	1.00			Depth to saturated zone	0.96			Hard to compact	1.00
									Depth to saturated zone	0.68

Table 19.--Agricultural Waste 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	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
Aa:						
Adrian	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	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
	Leaching limitation	0.90	Low adsorption	1.00		
AcC2:						
Alexandria	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.41	Restricted permeability	0.31	Too steep for surface application	1.00
	Slope	0.04	Too acid	0.07	Restricted permeability	0.31
	Too acid	0.02	Slope	0.04	Too steep for sprinkler application	0.22
					Too acid	0.07
AcD2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application	1.00
	Too acid	0.02	Too acid	0.07	Restricted permeability	0.31
					Too acid	0.07
AcE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application	1.00
	Too acid	0.02	Too acid	0.07	Restricted permeability	0.31
					Too acid	0.07

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
AeE2:						
Alexandria	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application	1.00
	Too acid	0.02	Too acid	0.07	Restricted permeability	0.31
					Too acid	0.07
Fox	Very limited		Very limited		Very limited	
	Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Filtering capacity	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.02	Too acid	0.07	Too steep for sprinkler application	1.00
					Too acid	0.07
AvA:						
Avonburg	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	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	0.08	Too acid	0.31	Too acid	0.31
AvB:						
Avonburg	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	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	0.08	Too acid	0.31	Too acid	0.31
					Too steep for surface application	0.08
BeD:						
Berks	Very limited		Very limited		Very limited	
	Droughty	1.00	Droughty	1.00	Too steep for surface application	1.00
	Slope	1.00	Slope	1.00	Droughty	1.00
	Too acid	0.43	Too acid	0.99	Too steep for sprinkler application	1.00
	Depth to bedrock	0.42	Depth to bedrock	0.42	Too acid	0.99
	Filtering capacity	0.01	Filtering capacity	0.01	Depth to bedrock	0.42

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
BeE:						
Berks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	1.00	Droughty	1.00	Too steep for sprinkler application	1.00
	Too acid	0.43	Too acid	0.99	Droughty	1.00
	Depth to bedrock	0.42	Depth to bedrock	0.42	Too acid	0.99
	Filtering capacity	0.01	Filtering capacity	0.01	Depth to bedrock	0.42
BgC:						
Berks	Very limited		Very limited		Very limited	
	Droughty	1.00	Droughty	1.00	Droughty	1.00
	Too acid	0.43	Too acid	0.99	Too steep for surface application	1.00
	Depth to bedrock	0.42	Depth to bedrock	0.42	Too acid	0.99
	Slope	0.37	Slope	0.37	Too steep for sprinkler application	0.59
	Filtering capacity	0.01	Filtering capacity	0.01	Depth to bedrock	0.42
Tarhollow	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.68	Too acid	0.77	Too steep for surface application	1.00
	Slope	0.37	Depth to saturated zone	0.68	Too acid	0.77
	Too acid	0.22	Slope	0.37	Depth to saturated zone	0.68
					Too steep for sprinkler application	0.59
CaB:						
Cana	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
	Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
					Too acid	0.07
CaC2:						
Cana	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Too steep for surface application	1.00
	Slope	0.04	Too acid	0.07	Depth to saturated zone	0.95
	Too acid	0.02	Slope	0.04	Too steep for sprinkler application	0.22
					Too acid	0.07

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
CaD2:						
Cana	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Too steep for sprinkler application	1.00
	Too acid	0.02	Too acid	0.07	Depth to saturated zone	0.95
					Too acid	0.07
CaE2:						
Cana	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Restricted permeability	1.00
	Too acid	0.02	Too acid	0.07	Depth to saturated zone	0.95
					Too acid	0.07
Cd:						
Carlisle	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	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
	Leaching limitation	0.90	Low adsorption	1.00		
CeD:						
Casco	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Droughty	1.00	Droughty	1.00
	Droughty	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
					Too steep for sprinkler application	1.00
Rodman	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Droughty	1.00	Droughty	1.00	Too steep for surface application	1.00
	Slope	1.00	Slope	1.00	Droughty	1.00
	Leaching limitation	0.45			Too steep for sprinkler application	1.00

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
CgA:						
Celina	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
CgB:						
Celina	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
					Too steep for surface application	0.08
CgB2:						
Celina	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
	Droughty	0.02	Droughty	0.02	Too steep for surface application	0.08
					Droughty	0.02
ChA:						
Chavies	Somewhat limited		Somewhat limited		Somewhat limited	
	Flooding	0.40	Flooding	0.40	Too acid	0.31
	Too acid	0.08	Too acid	0.31	Low adsorption	0.01
	Low adsorption	0.01	Filtering capacity	0.01	Filtering capacity	0.01
	Filtering capacity	0.01				
CmA:						
Cidermill	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Too acid	0.08	Too acid	0.31	Too acid	0.31
CmB:						
Cidermill	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Too acid	0.08	Too acid	0.31	Too acid	0.31
					Too steep for surface application	0.08
Cp:						
Clifty	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Too acid	0.91
	Low adsorption	0.90	Too acid	0.91	Low adsorption	0.90
	Too acid	0.32	Filtering capacity	0.01	Flooding	0.60
	Filtering capacity	0.01			Filtering capacity	0.01
CrA:						
Coolville	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Too acid	0.99	Too acid	0.99
	Too acid	0.43	Depth to saturated zone	0.95	Depth to saturated zone	0.95

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
CrB:						
Coolville	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Too acid	0.99	Too acid	0.99
	Too acid	0.43	Depth to saturated zone	0.95	Depth to saturated zone	0.95
					Too steep for surface application	0.08
CrC2:						
Coolville	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Too acid	0.99	Too steep for surface application	1.00
	Too acid	0.43	Depth to saturated zone	0.95	Too acid	0.99
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.95
					Too steep for sprinkler application	0.22
CvA:						
Crosby	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 acid	0.02	Too acid	0.07	Too acid	0.07
	Droughty	0.01	Droughty	0.01	Droughty	0.01
CvB:						
Crosby	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
	Droughty	0.07	Too acid	0.07	Too steep for surface application	0.08
	Too acid	0.02	Droughty	0.07	Too acid	0.07
					Droughty	0.07
CwC2:						
Cruze	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.95	Too acid	1.00	Too steep for surface application	1.00
	Restricted permeability	0.74	Depth to saturated zone	0.95	Too acid	1.00
	Too acid	0.62	Restricted permeability	0.60	Depth to saturated zone	0.95
	Slope	0.04	Slope	0.04	Restricted permeability	0.60
					Too steep for sprinkler application	0.22

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
CwD:						
Cruze	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
	Slope	1.00	Slope	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Too acid	1.00	Too steep for sprinkler application	1.00
	Too acid	0.62	Depth to saturated zone	0.95	Too acid	1.00
					Depth to saturated zone	0.95
CwE:						
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
	Depth to saturated zone	0.95	Too acid	1.00	Restricted permeability	1.00
	Too acid	0.62	Depth to saturated zone	0.95	Too acid	1.00
					Depth to saturated zone	0.95
DAM:						
Dam	Not rated		Not rated		Not rated	
EeA:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Droughty	0.48	Droughty	0.48	Droughty	0.48
EeB:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Droughty	0.78	Droughty	0.78	Droughty	0.78
					Too steep for surface application	0.08
EeC2:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Droughty	0.83	Droughty	0.83	Too steep for surface application	1.00
	Slope	0.04	Slope	0.04	Droughty	0.83
					Too steep for sprinkler application	0.22
EgA:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Droughty	0.82	Droughty	0.82	Droughty	0.82

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
EgB:						
Eldean	Somewhat limited		Somewhat limited		Somewhat limited	
	Droughty	0.85	Droughty	0.85	Droughty	0.85
					Too steep for surface application	0.08
EgC2:						
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Droughty	0.94	Droughty	0.94	Too steep for surface application	1.00
	Slope	0.04	Slope	0.04	Droughty	0.94
					Too steep for sprinkler application	0.22
ErD:						
Ernest	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Too steep for sprinkler application	1.00
	Droughty	0.67	Too acid	0.91	Depth to saturated zone	0.95
	Depth to cemented pan	0.64	Droughty	0.67	Too acid	0.91
	Too acid	0.32	Depth to cemented pan	0.64	Droughty	0.67
EuA:						
Euclid	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	Flooding	0.40	Too acid	0.31
	Flooding	0.40	Too acid	0.31	Restricted permeability	0.31
	Too acid	0.08	Restricted permeability	0.31		
FhA:						
Fitchville	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	0.31	Too acid	0.31
	Too acid	0.08	Restricted permeability	0.31	Restricted permeability	0.31
FhB:						
Fitchville	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	0.31	Too acid	0.31
	Too acid	0.08	Restricted permeability	0.31	Restricted permeability	0.31
					Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
FnB:						
Fox	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Droughty	0.10	Droughty	0.10	Droughty	0.10
	Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
					Too acid	0.07
FnC2:						
Fox	Somewhat limited		Somewhat limited		Very limited	
	Droughty	0.12	Droughty	0.12	Too steep for surface application	1.00
	Slope	0.04	Too acid	0.07	Too steep for sprinkler application	0.22
	Too acid	0.02	Slope	0.04	Droughty	0.12
					Too acid	0.07
Ge:						
Gessie	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	0.60
Gf:						
Gessie	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
GgC2:						
Gilpin	Somewhat limited		Very limited		Very limited	
	Droughty	0.73	Too acid	1.00	Too acid	1.00
	Too acid	0.73	Droughty	0.73	Too steep for surface application	1.00
	Depth to bedrock	0.42	Depth to bedrock	0.42	Droughty	0.73
	Low adsorption	0.15	Slope	0.04	Depth to bedrock	0.42
	Slope	0.04			Too steep for sprinkler application	0.22
GhC:						
Gilpin	Somewhat limited		Very limited		Very limited	
	Low adsorption	0.82	Too acid	1.00	Too acid	1.00
	Too acid	0.73	Droughty	0.66	Too steep for surface application	1.00
	Droughty	0.66	Depth to bedrock	0.42	Low adsorption	0.82
	Depth to bedrock	0.42	Slope	0.04	Droughty	0.66
	Slope	0.04	Low adsorption	0.01	Depth to bedrock	0.42
Tilsit	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too acid	1.00	Too acid	1.00
	Depth to cemented pan	0.95	Depth to saturated zone	1.00	Too steep for surface application	1.00
	Too acid	0.73	Depth to cemented pan	0.95	Depth to saturated zone	1.00
	Droughty	0.56	Droughty	0.56	Depth to cemented pan	0.95
	Slope	0.04	Slope	0.04	Droughty	0.56

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
GnA:						
Glenford	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to saturated zone	0.68
	Restricted permeability	0.41	Too acid	0.31	Too acid	0.31
	Too acid	0.08	Restricted permeability	0.31	Restricted permeability	0.31
GnB:						
Glenford	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to saturated zone	0.68
	Restricted permeability	0.41	Too acid	0.31	Too acid	0.31
	Too acid	0.08	Restricted permeability	0.31	Restricted permeability	0.31
					Too steep for surface application	0.08
HaB:						
Haubstadt	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
	Depth to cemented pan	0.79	Too acid	0.91	Too acid	0.91
	Too acid	0.32	Depth to cemented pan	0.79	Depth to cemented pan	0.79
	Droughty	0.30	Droughty	0.30	Droughty	0.30
					Too steep for surface application	0.08
HaC2:						
Haubstadt	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Too steep for surface application	1.00
	Depth to cemented pan	0.79	Too acid	0.91	Depth to saturated zone	0.95
	Droughty	0.43	Depth to cemented pan	0.79	Too acid	0.91
	Too acid	0.32	Droughty	0.43	Depth to cemented pan	0.79
	Slope	0.04	Slope	0.04	Droughty	0.43
Hd:						
Haymond	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	0.60
HeA:						
Henshaw	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	Restricted permeability	0.31	Restricted permeability	0.31
	Too acid	0.02	Too acid	0.07	Too acid	0.07

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
HkD2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.08	Too acid	0.31	Too steep for sprinkler application	1.00
					Too acid	0.31
HkE2:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.08	Too acid	0.31	Too steep for sprinkler application	1.00
					Too acid	0.31
Ht:						
Huntington	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	0.60
	Low adsorption	0.02			Low adsorption	0.02
KaA:						
Kendallville	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
KaB:						
Kendallville	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
					Too steep for surface application	0.08
KeC2:						
Kendallville	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.41	Restricted permeability	0.31	Too steep for surface application	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.31
					Too steep for sprinkler application	0.22
Eldean	Somewhat limited		Somewhat limited		Very limited	
	Droughty	0.83	Droughty	0.83	Too steep for surface application	1.00
	Slope	0.04	Slope	0.04	Droughty	0.83
					Too steep for sprinkler application	0.22

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
KeD2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application	1.00
					Restricted permeability	0.31
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.91	Droughty	0.91	Too steep for sprinkler application	1.00
					Droughty	0.91
KeE2:						
Kendallville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Too steep for sprinkler application	1.00
					Restricted permeability	0.31
Eldean	Very limited		Very limited		Very limited	
	Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Filtering capacity	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	1.00	Droughty	1.00	Too steep for sprinkler application	1.00
					Droughty	1.00
Kn:						
Kinn	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Low adsorption	1.00
	Low adsorption	1.00	Low adsorption	1.00	Restricted permeability	0.96
	Restricted permeability	1.00	Restricted permeability	0.96	Depth to saturated zone	0.68
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Flooding	0.60
Ko:						
Kokomo	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
	Leaching limitation	0.70	Restricted permeability	0.31	Restricted permeability	0.31
	Restricted permeability	0.41				

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
Kp:						
Kokomo	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
	Leaching limitation	0.70	Restricted permeability	0.31	Restricted permeability	0.31
	Restricted permeability	0.41				
LfC2:						
Latham	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.95	Too acid	0.99	Too steep for surface application	1.00
	Droughty	0.56	Depth to saturated zone	0.95	Too acid	0.99
	Too acid	0.43	Droughty	0.56	Depth to saturated zone	0.95
	Depth to bedrock	0.42	Depth to bedrock	0.42	Droughty	0.56
	Runoff limitation	0.40	Slope	0.04	Depth to bedrock	0.42
LfD2:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.95	Too acid	0.99	Too steep for sprinkler application	1.00
	Droughty	0.68	Depth to saturated zone	0.95	Too acid	0.99
	Too acid	0.43	Droughty	0.68	Depth to saturated zone	0.95
	Depth to bedrock	0.42	Depth to bedrock	0.42	Droughty	0.68
LfE:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.95	Too acid	0.99	Too steep for sprinkler application	1.00
	Droughty	0.65	Depth to saturated zone	0.95	Too acid	0.99
	Too acid	0.43	Droughty	0.65	Depth to saturated zone	0.95
	Depth to bedrock	0.42	Depth to bedrock	0.42	Droughty	0.65
LgD:						
Latham	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.95	Too acid	0.99	Too steep for sprinkler application	1.00
	Droughty	0.56	Depth to saturated zone	0.95	Too acid	0.99
	Too acid	0.43	Droughty	0.56	Depth to saturated zone	0.95
	Depth to bedrock	0.42	Depth to bedrock	0.42	Droughty	0.56

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
LgD:						
Wharton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.95	Too acid	1.00	Too steep for sprinkler application	1.00
	Too acid	0.50	Depth to saturated zone	0.95	Too acid	1.00
					Depth to saturated zone	0.95
LrB:						
Libre	Very limited		Very limited		Very limited	
	Low adsorption	1.00	Low adsorption	1.00	Low adsorption	1.00
	Restricted permeability	1.00	Too acid	1.00	Too acid	1.00
	Too acid	0.78	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to saturated zone	0.68
					Too steep for surface application	0.08
LrC2:						
Libre	Somewhat limited		Very limited		Very limited	
	Too acid	0.78	Too acid	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Too acid	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.68
	Low adsorption	0.07	Slope	0.04	Restricted permeability	0.31
	Slope	0.04			Too steep for sprinkler application	0.22
MaB:						
Markland	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.74	Restricted permeability	0.60	Restricted permeability	0.60
	Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
					Too acid	0.07
MbC2:						
Markland	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.74	Restricted permeability	0.60	Too steep for surface application	1.00
	Slope	0.04	Too acid	0.07	Restricted permeability	0.60
	Too acid	0.02	Slope	0.04	Too steep for sprinkler application	0.22
					Too acid	0.07

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
MbD2:						
Markland	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.74	Restricted permeability	0.60	Too steep for sprinkler application	1.00
	Too acid	0.02	Too acid	0.07	Restricted permeability	0.60
					Too acid	0.07
MbE2:						
Markland	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.74	Restricted permeability	0.60	Too steep for sprinkler application	1.00
	Too acid	0.02	Too acid	0.07	Restricted permeability	0.60
					Too acid	0.07
McA:						
Martinsville	Somewhat limited		Somewhat limited		Not limited	
	Flooding	0.40	Flooding	0.40		
MdA:						
McGary	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MdB:						
McGary	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	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	0.08
MeC2:						
Mentor	Somewhat limited		Somewhat limited		Very limited	
	Too acid	0.32	Too acid	0.91	Too steep for surface application	1.00
	Slope	0.04	Slope	0.04	Too acid	0.91
					Too steep for sprinkler application	0.22

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
MeD2:						
Mentor	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
MfA:						
Mentor	Somewhat limited		Somewhat limited		Somewhat limited	
	Flooding	0.40	Too acid	0.91	Too acid	0.91
	Too acid	0.32	Flooding	0.40		
MgA:						
Mentor	Somewhat limited		Somewhat limited		Somewhat limited	
	Too acid	0.22	Too acid	0.77	Too acid	0.77
	Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
MgB:						
Mentor	Somewhat limited		Somewhat limited		Somewhat limited	
	Too acid	0.22	Too acid	0.77	Too acid	0.77
	Filtering capacity	0.01	Filtering capacity	0.01	Too steep for surface application	0.08
					Filtering capacity	0.01
MhB:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
	Droughty	0.10	Droughty	0.10	Droughty	0.10
					Too steep for surface application	0.08
MhB2:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Droughty	0.44	Droughty	0.44	Droughty	0.44
	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
					Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
MhC2:						
Miamian	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.43
	Droughty	0.23	Droughty	0.23	Restricted permeability	0.31
	Slope	0.04	Slope	0.04	Droughty	0.23
					Too steep for sprinkler application	0.22
MhD2:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to dense layer	1.00	Droughty	0.64	Too steep for sprinkler application	1.00
	Droughty	0.64	Depth to saturated zone	0.43	Droughty	0.64
	Depth to saturated zone	0.43	Restricted permeability	0.31	Depth to saturated zone	0.43
	Restricted permeability	0.41			Restricted permeability	0.31
MhE:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Too steep for sprinkler application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.43
	Droughty	0.27	Droughty	0.27	Restricted permeability	0.31
					Droughty	0.27
MmC2:						
Miamian	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.43
	Droughty	0.29	Droughty	0.29	Restricted permeability	0.31
	Slope	0.04	Slope	0.04	Droughty	0.29
					Too steep for sprinkler application	0.22

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
MmD2:						
Miamian	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.63	Droughty	0.63	Too steep for sprinkler application	1.00
	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Droughty	0.63
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.43
					Restricted permeability	0.31
MnB:						
Miamian	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.43	Depth to saturated zone	0.43	Depth to saturated zone	0.43
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
	Droughty	0.10	Droughty	0.10	Droughty	0.10
					Too steep for surface application	0.08
Lewisburg	Very limited		Very limited		Very limited	
	Depth to dense layer	1.00	Droughty	1.00	Droughty	1.00
	Droughty	1.00	Depth to saturated zone	0.96	Depth to saturated zone	0.96
	Depth to saturated zone	0.96			Too steep for surface application	0.08
MoB:						
Milton	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.74	Droughty	0.69	Droughty	0.69
	Droughty	0.69	Restricted permeability	0.60	Restricted permeability	0.60
	Depth to bedrock	0.42	Depth to bedrock	0.42	Depth to bedrock	0.42
	Too acid	0.08	Too acid	0.31	Too acid	0.31
					Too steep for surface application	0.08
MoC2:						
Milton	Somewhat limited		Somewhat limited		Very limited	
	Droughty	0.93	Droughty	0.93	Too steep for surface application	1.00
	Restricted permeability	0.74	Restricted permeability	0.60	Droughty	0.93
	Depth to bedrock	0.42	Depth to bedrock	0.42	Restricted permeability	0.60
	Too acid	0.08	Too acid	0.31	Depth to bedrock	0.42
	Slope	0.04	Slope	0.04	Too acid	0.31

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
MoE2:						
Milton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.95	Droughty	0.95	Too steep for sprinkler application	1.00
	Restricted permeability	0.74	Restricted permeability	0.60	Droughty	0.95
	Depth to bedrock	0.42	Depth to bedrock	0.42	Restricted permeability	0.60
	Too acid	0.08	Too acid	0.31	Depth to bedrock	0.42
NeC2:						
Negley	Somewhat limited		Somewhat limited		Very limited	
	Low adsorption	0.28	Too acid	0.31	Too steep for surface application	1.00
	Too acid	0.08	Slope	0.04	Too acid	0.31
	Slope	0.04	Filtering capacity	0.01	Low adsorption	0.28
	Filtering capacity	0.01			Too steep for sprinkler application	0.22
					Filtering capacity	0.01
NeD2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.08	Too acid	0.31	Too steep for sprinkler application	1.00
	Low adsorption	0.03	Filtering capacity	0.01	Too acid	0.31
	Filtering capacity	0.01			Low adsorption	0.03
					Filtering capacity	0.01
NeE2:						
Negley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.08	Too acid	0.31	Too steep for sprinkler application	1.00
	Filtering capacity	0.01	Filtering capacity	0.01	Too acid	0.31
					Filtering capacity	0.01
NnA:						
Nineveh	Somewhat limited		Somewhat limited		Somewhat limited	
	Droughty	0.02	Droughty	0.02	Droughty	0.02
NnB:						
Nineveh	Somewhat limited		Somewhat limited		Somewhat limited	
	Droughty	0.03	Droughty	0.03	Too steep for surface application	0.08
					Droughty	0.03

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
ObA:						
Ockley	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
ObB:						
Ockley	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
					Too steep for surface application	0.08
OmB:						
Omulga	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Depth to cemented pan	0.71
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to saturated zone	0.68
	Too acid	0.08	Too acid	0.31	Too acid	0.31
	Droughty	0.02	Droughty	0.02	Too steep for surface application	0.08
					Droughty	0.02
OmC2:						
Omulga	Somewhat limited		Somewhat limited		Very limited	
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Too steep for surface application	1.00
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to cemented pan	0.71
	Droughty	0.12	Too acid	0.31	Depth to saturated zone	0.68
	Too acid	0.08	Droughty	0.12	Too acid	0.31
	Slope	0.04	Slope	0.04	Too steep for sprinkler application	0.22
Or:						
Orrville	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.02	Too acid	0.07	Too acid	0.07
OwB:						
Otwell	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to saturated zone	0.68
	Restricted permeability	0.41	Too acid	0.31	Too acid	0.31
	Depth to cemented pan	0.10	Restricted permeability	0.31	Restricted permeability	0.31
	Too acid	0.08	Depth to cemented pan	0.10	Depth to cemented pan	0.10
					Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
Pc:						
Patton	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low adsorption	0.87			Low adsorption	0.87
	Leaching limitation	0.70				
Pg:						
Peoga	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
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.08	Too acid	0.31	Too acid	0.31
PkA:						
Pike	Somewhat limited		Somewhat limited		Somewhat limited	
	Too acid	0.02	Too acid	0.07	Too acid	0.07
PkB:						
Pike	Somewhat limited		Somewhat limited		Somewhat limited	
	Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
					Too acid	0.07
Pn:						
Pits, gravel	Not rated		Not rated		Not rated	
Po:						
Pits, quarry	Not rated		Not rated		Not rated	
Pp:						
Pope	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
	Low adsorption	0.23			Low adsorption	0.23
PtB:						
Princeton	Somewhat limited		Somewhat limited		Somewhat limited	
	Filtering capacity	0.01	Filtering capacity	0.01	Too steep for surface application	0.08
					Filtering capacity	0.01
PtC:						
Princeton	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Too steep for surface application	1.00
	Filtering capacity	0.01	Filtering capacity	0.01	Too steep for sprinkler application	0.22
					Filtering capacity	0.01

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
PtD:						
Princeton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	
	Filtering capacity	0.01	Filtering capacity	0.01		1.00
					Too steep for sprinkler application	1.00
					Filtering capacity	0.01
RbA:						
Rainsboro	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Depth to cemented pan	0.71
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to saturated zone	0.68
	Too acid	0.08	Too acid	0.31	Too acid	0.31
	Droughty	0.01	Droughty	0.01	Droughty	0.01
RbB:						
Rainsboro	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Depth to cemented pan	0.71
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to saturated zone	0.68
	Too acid	0.08	Too acid	0.31	Too acid	0.31
	Droughty	0.01	Droughty	0.01	Too steep for surface application	0.08
					Droughty	0.01
RbC2:						
Rainsboro	Somewhat limited		Somewhat limited		Very limited	
	Depth to cemented pan	0.71	Depth to cemented pan	0.71	Too steep for surface application	1.00
	Depth to saturated zone	0.68	Depth to saturated zone	0.68	Depth to cemented pan	0.71
	Too acid	0.08	Too acid	0.31	Depth to saturated zone	0.68
	Slope	0.04	Slope	0.04	Too acid	0.31
	Droughty	0.02	Droughty	0.02	Too steep for sprinkler application	0.22
RcF:						
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Low adsorption	0.91	Too acid	0.31	Too steep for sprinkler application	1.00
	Too acid	0.08	Filtering capacity	0.01	Low adsorption	0.91
	Filtering capacity	0.01			Too acid	0.31
					Filtering capacity	0.01
Rock outcrop	Not rated		Not rated		Not rated	

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
RdD2:						
Rodman	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.97	Droughty	0.97	Too steep for sprinkler application	1.00
	Leaching limitation	0.45			Droughty	0.97
RdE2:						
Rodman	Very limited		Very limited		Very limited	
	Slope	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Filtering capacity	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.97	Droughty	0.97	Too steep for sprinkler application	1.00
	Leaching limitation	0.45			Droughty	0.97
Rn:						
Ross	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	0.60
Ro:						
Rossburg	Somewhat limited		Somewhat limited		Somewhat limited	
	Flooding	0.40	Flooding	0.40	Filtering capacity	0.01
	Filtering capacity	0.01	Filtering capacity	0.01		
RpA:						
Rossmoyne	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 cemented pan	0.90	Depth to cemented pan	0.90	Depth to cemented pan	0.90
	Droughty	0.43	Droughty	0.43	Droughty	0.43
	Too acid	0.08	Too acid	0.31	Too acid	0.31
RpB:						
Rossmoyne	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 cemented pan	0.90	Depth to cemented pan	0.90	Depth to cemented pan	0.90
	Droughty	0.37	Droughty	0.37	Droughty	0.37
	Too acid	0.08	Too acid	0.31	Too acid	0.31
					Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
RpC2:						
Rossmoyne	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 cemented pan	0.90	Depth to cemented pan	0.90	Too steep for surface application	1.00
	Droughty	0.49	Droughty	0.49	Depth to cemented pan	0.90
	Too acid	0.08	Too acid	0.31	Droughty	0.49
	Slope	0.04	Slope	0.04	Too acid	0.31
RsB:						
Rossmoyne	Very limited		Very limited		Very limited	
	Depth to dense layer	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to cemented pan	0.90	Depth to cemented pan	0.90
	Depth to cemented pan	0.90	Droughty	0.62	Droughty	0.62
	Droughty	0.62	Too acid	0.31	Too acid	0.31
	Too acid	0.08			Too steep for surface application	0.08
Cana	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
	Too acid	0.02	Too acid	0.07	Too steep for surface application	0.08
					Too acid	0.07
RsC2:						
Rossmoyne	Very limited		Very limited		Very limited	
	Depth to dense layer	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to cemented pan	0.90	Too steep for surface application	1.00
	Depth to cemented pan	0.90	Droughty	0.61	Depth to cemented pan	0.90
	Droughty	0.61	Too acid	0.31	Droughty	0.61
	Too acid	0.08	Slope	0.04	Too acid	0.31
Cana	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Too steep for surface application	1.00
	Slope	0.04	Too acid	0.07	Depth to saturated zone	0.95
	Too acid	0.02	Slope	0.04	Too steep for sprinkler application	0.22
					Too acid	0.07

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
SfD:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.50	Too acid	1.00	Too steep for sprinkler application	1.00
					Too acid	1.00
SgF:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.50	Too acid	1.00	Too steep for sprinkler application	1.00
					Too acid	1.00
Brownsville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.50	Too acid	0.99	Too steep for sprinkler application	1.00
	Too acid	0.43	Droughty	0.50	Too acid	0.99
	Restricted permeability	0.41	Restricted permeability	0.31	Droughty	0.50
	Filtering capacity	0.01	Filtering capacity	0.01	Restricted permeability	0.31
ShE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.50	Too acid	1.00	Too steep for sprinkler application	1.00
					Too acid	1.00
Cruze	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
	Depth to saturated zone	0.95	Too acid	1.00	Restricted permeability	1.00
	Too acid	0.62	Depth to saturated zone	0.95	Too acid	1.00
					Depth to saturated zone	0.95

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
ShE:						
Weikert	Very limited		Very limited		Very limited	
	Slope	1.00	Droughty	1.00	Droughty	1.00
	Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Too steep for sprinkler application	1.00
	Leaching limitation	0.70	Too acid	0.91	Depth to bedrock	1.00
	Too acid	0.32	Filtering capacity	0.01	Too acid	0.91
SkE:						
Shelocta	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Too acid	0.50	Too acid	1.00	Too steep for sprinkler application	1.00
					Too acid	1.00
Rigley	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Low adsorption	0.98	Too acid	0.31	Too steep for sprinkler application	1.00
	Too acid	0.08	Filtering capacity	0.01	Low adsorption	0.98
	Filtering capacity	0.01			Too acid	0.31
					Filtering capacity	0.01
Sp:						
Skidmore	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	0.60
	Low adsorption	0.27	Droughty	0.21	Low adsorption	0.27
	Droughty	0.21	Depth to saturated zone	0.09	Droughty	0.21
	Depth to saturated zone	0.09	Filtering capacity	0.01	Depth to saturated zone	0.09
	Filtering capacity	0.01			Filtering capacity	0.01
St:						
Sloan	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	1.00	Flooding	0.60
	Leaching limitation	0.70				
SuB:						
Spargus	Somewhat limited		Very limited		Very limited	
	Too acid	0.78	Too acid	1.00	Too acid	1.00
	Flooding	0.20	Flooding	0.20	Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
Sv:						
Stonelick	Very limited		Very limited		Somewhat limited	
	Flooding	1.00	Flooding	1.00	Flooding	0.60
	Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
Sw:						
Stonelick	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
TbA:						
Taggart	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
	Too acid	0.08	Too acid	0.31	Too acid	0.31
ThC3:						
Thrifton	Very limited		Very limited		Very limited	
	Droughty	1.00	Droughty	1.00	Droughty	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Too steep for surface application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.86
	Slope	0.04	Slope	0.04	Restricted permeability	0.31
					Too steep for sprinkler application	0.22
ThD3:						
Thrifton	Very limited		Very limited		Very limited	
	Droughty	1.00	Droughty	1.00	Droughty	1.00
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Too steep for sprinkler application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.86
					Restricted permeability	0.31
ThE3:						
Thrifton	Very limited		Very limited		Very limited	
	Slope	1.00	Droughty	1.00	Droughty	1.00
	Droughty	1.00	Slope	1.00	Too steep for surface application	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Too steep for sprinkler application	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Depth to saturated zone	0.86
					Restricted permeability	0.31

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
TnA:						
Tilsit	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too acid	1.00	Too acid	1.00
	Depth to cemented pan	0.95	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.73	Depth to cemented pan	0.95	Depth to cemented pan	0.95
	Droughty	0.56	Droughty	0.56	Droughty	0.56
To:						
Tioga	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Too acid	0.02	Too acid	0.07	Too acid	0.07
TyA:						
Tyler	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 dense layer	1.00	Too acid	0.99	Too acid	0.99
	Too acid	0.43	Restricted permeability	0.31	Restricted permeability	0.31
	Restricted permeability	0.41	Droughty	0.11	Droughty	0.11
	Runoff limitation	0.40	Depth to cemented pan	0.01	Depth to cemented pan	0.01
Ud:						
Udorthents	Not rated		Not rated		Not rated	
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Warsaw	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Droughty	0.04	Droughty	0.04	Droughty	0.04
Wk:						
Westland	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	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
	Leaching limitation	0.70				
WtB:						
Wyatt	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.95
	Too acid	0.08	Too acid	0.31	Too acid	0.31
					Too steep for surface application	0.08

Table 19.--Agricultural Waste Management--Continued

Map symbol and soil name	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
WyC2:						
Wyatt	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Too steep for surface application	1.00
	Too acid	0.08	Too acid	0.31	Depth to saturated zone	0.95
	Slope	0.04	Slope	0.04	Too acid	0.31
					Too steep for sprinkler application	0.22
WyD2:						
Wyatt	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
	Slope	1.00	Slope	1.00	Restricted permeability	1.00
	Depth to saturated zone	0.95	Depth to saturated zone	0.95	Too steep for sprinkler application	1.00
	Too acid	0.08	Too acid	0.31	Depth to saturated zone	0.95
					Too acid	0.31

Table 20.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Aa:				
Adrian	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
AcC2:				
Alexandria	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
AcD2:				
Alexandria	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
AcE2:				
Alexandria	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
AeE2:				
Alexandria	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
Fox	Poor: slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
AvA:				
Avonburg	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
AvB:				
Avonburg	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BeD:				
Berks	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
BeE:				
Berks	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
BgC:				
Berks	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Tarhollow	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CaB:				
Cana	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
CaC2:				
Cana	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.
CaD2:				
Cana	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.
CaE2:				
Cana	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.
Cd:				
Carlisle	Poor: low strength, wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
CeD:				
Casco	Fair: slope.	Probable	Probable	Poor: area reclaim, small stones, too sandy.
Rodman	Fair: slope.	Probable	Probable	Poor: area reclaim, small stones, too sandy.
CgA:				
Celina	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
CgB:				
Celina	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
CgB2:				
Celina	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
ChA:				
Chavies	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones.
CmA:				
Cidermill	Good	Probable	Probable	Poor: area reclaim.
CmB:				
Cidermill	Good	Probable	Probable	Poor: area reclaim.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Cp:				
Clifty	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
CrA:				
Coolville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CrB:				
Coolville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CrC2:				
Coolville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
CvA:				
Crosby	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
CvB:				
Crosby	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
CwC2:				
Cruze	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
CwD:				
Cruze	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
CwE:				
Cruze	Poor: low strength, shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
DAM:				
Dam.				
EeA:				
Eldean	Good	Probable	Probable	Poor: area reclaim, small stones.
EeB:				
Eldean	Good	Probable	Probable	Poor: area reclaim, small stones.
EeC2:				
Eldean	Good	Probable	Probable	Poor: area reclaim, small stones.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
EgA:				
Eldean	Good	Probable	Probable	Poor: area reclaim, small stones, too clayey.
EgB:				
Eldean	Good	Probable	Probable	Poor: area reclaim, small stones, too clayey.
EgC2:				
Eldean	Good	Probable	Probable	Poor: area reclaim, small stones, too clayey.
ErD:				
Ernest	Fair: low strength, slope, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
EuA:				
Euclid	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
FhA:				
Fitchville	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
FhB:				
Fitchville	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
FnB:				
Fox	Good	Probable	Probable	Poor: area reclaim, small stones.
FnC2:				
Fox	Good	Probable	Probable	Poor: area reclaim, small stones.
Ge:				
Gessie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
Gf:				
Gessie	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
GgC2:				
Gilpin	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
GhC:				
Gilpin	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Tilsit	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones.
GnA:				
Glenford	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
GnB:				
Glenford	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
HaB:				
Haubstadt	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
HaC2:				
Haubstadt	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.
Hd:				
Haymond	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
HeA:				
Henshaw	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
HkD2:				
Hickory	Fair: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
HkE2:				
Hickory	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Ht:				
Huntington	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
KaA:				
Kendallville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
KaB:				
Kendallville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
KeC2:				
Kendallville	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Eldean	Good	Probable	Probable	Poor: area reclaim, small stones.
KeD2:				
Kendallville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Eldean	Fair: slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
KeE2:				
Kendallville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
Eldean	Poor: slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
Kn:				
Kinn	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer.
Ko:				
Kokomo	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Kp:				
Kokomo	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
LfC2:				
Latham	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
LfD2:				
Latham	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
LfE:				
Latham	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
LgD:				
Latham	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
LgD:				
Wharton	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
LrB:				
Libre	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
LrC2:				
Libre	Fair: shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
MaB:				
Markland	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MbC2:				
Markland	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MbD2:				
Markland	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
MbE2:				
Markland	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
McA:				
Martinsville	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
MdA:				
McGary	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
MdB:				
McGary	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
MeC2:				
Mentor	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
MeD2:				
Mentor	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
MfA:				
Mentor	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
MgA:				
Mentor	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
MgB:				
Mentor	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim.
MhB:				
Miamian	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MhB2:				
Miamian	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MhC2:				
Miamian	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
MhD2:				
Miamian	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
MhE:				
Miamian	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.
MmC2:				
Miamian	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
MmD2:				
Miamian	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
MnB:				
Miamian	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Lewisburg	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
MoB:				
Milton	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
MoC2:				
Milton	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
MoE2:				
Milton	Poor: area reclaim, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, thin layer.
NeC2:				
Negley	Good	Probable	Probable	Poor: small stones.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
NeD2:				
Negley	Fair: slope.	Probable	Probable	Poor: slope, small stones.
NeE2:				
Negley	Poor: slope.	Probable	Probable	Poor: slope, small stones.
NnA:				
Nineveh	Good	Probable	Probable	Poor: area reclaim, small stones.
NnB:				
Nineveh	Good	Probable	Probable	Poor: area reclaim, small stones.
ObA:				
Ockley	Good	Probable	Probable	Poor: area reclaim, small stones.
ObB:				
Ockley	Good	Probable	Probable	Poor: area reclaim, small stones.
OmB:				
Omulga	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
OmC2:				
Omulga	Poor: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones.
Or:				
Orrville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones.
OwB:				
Otwell	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Pc:				
Patton	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Pg:				
Peoga	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too acid, wetness.
PkA:				
Pike	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
PkB:				
Pike	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Pn:				
Pits, gravel.				
Po:				
Pits, quarry.				
Pp:				
Pope	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
PtB:				
Princeton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
PtC:				
Princeton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
PtD:				
Princeton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
RbA:				
Rainsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
RbB:				
Rainsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
RbC2:				
Rainsboro	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim.
RcF:				
Rigley	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Rock outcrop.				
RdD2:				
Rodman	Fair: slope.	Probable	Probable	Poor: area reclaim, small stones, too sandy.
RdE2:				
Rodman	Poor: slope.	Probable	Probable	Poor: area reclaim, small stones, too sandy.
Rn:				
Ross	Good	Improbable: excess fines.	Improbable: excess fines.	Good.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Ro:				
Rossburg	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
RpA:				
Rossmoyne	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey.
RpB:				
Rossmoyne	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey.
RpC2:				
Rossmoyne	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, slope, too clayey.
RsB:				
Rossmoyne	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey.
Cana	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
RsC2:				
Rossmoyne	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, slope, too clayey.
Cana	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.
SfD:				
Shelocta	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
SgF:				
Shelocta	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Brownsville	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
ShE:				
Shelocta	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
ShE:				
Cruze	Poor: low strength, shrink-swell, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Weikert	Poor: depth to rock, slope.	Improbable: small stones.	Improbable: thin layer.	Poor: depth to rock, slope, small stones.
SkE:				
Shelocta	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
Rigley	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Sp:				
Skidmore	Fair: area reclaim.	Improbable: small stones.	Probable	Poor: area reclaim, small stones.
St:				
Sloan	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
SuB:				
Spargus	Good	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
Sv:				
Stonelick	Good	Probable	Improbable: too sandy.	Fair: small stones.
Sw:				
Stonelick	Good	Probable	Improbable: too sandy.	Fair: small stones.
TbA:				
Taggart	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
ThC3:				
Thrifton	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
ThD3:				
Thrifton	Poor: slope, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.
ThE3:				
Thrifton	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope, small stones.

Table 20.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
TnA:				
Tilsit	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
To:				
Tioga	Good	Probable	Probable	Poor: area reclaim, small stones.
TyA:				
Tyler	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Ud:				
Udorthents.				
W:				
Water.				
WcA:				
Warsaw	Good	Probable	Probable	Poor: area reclaim, small stones.
Wk:				
Westland	Poor: wetness.	Probable	Probable	Poor: area reclaim, wetness.
WtB:				
Wyatt	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WyC2:				
Wyatt	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
WyD2:				
Wyatt	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, too clayey.

Table 21.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Aa:							
Adrian	Severe: seepage.	Severe: piping, ponding, seepage.	Severe: cutbanks cave, slow refill.	Limitation: frost action, ponding, subsides.	Limitation: ponding, rooting depth, soil blowing.	Limitation: ponding, soil blowing, too sandy.	Limitation: rooting depth, wetness.
AcC2:							
Alexandria	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.
AcD2:							
Alexandria	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.
AcE2:							
Alexandria	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.
AeE2:							
Alexandria	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.
Fox	Severe: seepage, slope.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: erodes easily, slope, too sandy.	Limitation: erodes easily, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
AvA:							
Avonburg	Moderate: seepage.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: percs slowly, wetness.	Limitation: erodes easily, rooting depth, wetness.	Limitation: erodes easily, rooting depth, wetness.
AvB:							
Avonburg	Moderate: seepage, slope.	Severe: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, rooting depth, wetness.	Limitation: erodes easily, rooting depth, wetness.
BeD:							
Berks	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, large stones, slope.	Limitation: depth to rock, large stones, slope.	Limitation: droughty, large stones, slope.
BeE:							
Berks	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, large stones, slope.	Limitation: depth to rock, large stones, slope.	Limitation: droughty, large stones, slope.
BgC:							
Berks	Severe: seepage, slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, large stones, slope.	Limitation: depth to rock, large stones, slope.	Limitation: droughty, large stones, slope.
Tarhollow	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, percs slowly, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CaB:							
Cana	Moderate: seepage, slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
CaC2:							
Cana	Severe: slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
CaD2:							
Cana	Severe: slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
CaE2:							
Cana	Severe: slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
Cd:							
Carlisle	Severe: seepage.	Severe: excess humus, ponding.	Severe: slow refill.	Limitation: frost action, ponding, subsides.	Limitation: ponding, soil blowing.	Limitation: ponding, soil blowing.	Limitation: wetness.
CeD:							
Casco	Severe: seepage, slope.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, slope, soil blowing.	Limitation: large stones, slope, too sandy.	Limitation: droughty, large stones, slope.
Rodman	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, slope.	Limitation: slope, too sandy.	Limitation: droughty, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CgA:							
Celina	Slight	Severe: piping.	Severe: no water.	Limitation: frost action.	Limitation: wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
CgB:							
Celina	Moderate: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, slope.	Limitation: slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
CgB2:							
Celina	Moderate: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, slope.	Limitation: slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
ChA:							
Chavies	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: soil blowing.	Limitation: soil blowing.	Favorable.
CmA:							
Cidermill	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily.
CmB:							
Cidermill	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily.	Limitation: erodes easily.
Cp:							
Clifty	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: flooding.	Favorable	Favorable.
CrA:							
Coolville	Moderate: seepage.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: percs slowly, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, percs slowly.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CrB:							
Coolville	Moderate: seepage, slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, percs slowly.
CrC2:							
Coolville	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
CvA:							
Crosby	Slight	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth, wetness.
CvB:							
Crosby	Moderate: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth, wetness.
CwC2:							
Cruze	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope.	Limitation: erodes easily, percs slowly, slope.
CwD:							
Cruze	Severe: slippage, slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slippage, slope.	Limitation: erodes easily, percs slowly, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
CwE:							
Cruze	Severe: slippage, slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slippage, slope.	Limitation: erodes easily, percs slowly, slope.
DAM:							
Dam.							
EeA:							
Eldean	Severe: seepage.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, erodes easily.	Limitation: erodes easily, too sandy.	Limitation: droughty, erodes easily.
EeB:							
Eldean	Severe: seepage.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, erodes easily, slope.	Limitation: erodes easily, too sandy.	Limitation: droughty, erodes easily.
EeC2:							
Eldean	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, erodes easily, slope.	Limitation: erodes easily, slope, too sandy.	Limitation: droughty, erodes easily, slope.
EgA:							
Eldean	Severe: seepage.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty.	Limitation: erodes easily, too sandy.	Limitation: droughty, erodes easily.
EgB:							
Eldean	Severe: seepage.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, slope.	Limitation: erodes easily, too sandy.	Limitation: droughty, erodes easily.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
EgC2:							
Eldean	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, slope.	Limitation: erodes easily, slope, too sandy.	Limitation: droughty, erodes easily, slope.
ErD:							
Ernest	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, large stones, slope.	Limitation: erodes easily, large stones, slope.
EuA:							
Euclid	Slight	Severe: piping, wetness.	Severe: slow refill.	Limitation: frost action.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
FhA:							
Fitchville	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: frost action.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
FhB:							
Fitchville	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, slope.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
FnB:							
Fox	Severe: seepage.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: erodes easily, too sandy.	Limitation: erodes easily.
FnC2:							
Fox	Severe: seepage, slope.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: erodes easily, slope, too sandy.	Limitation: erodes easily, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ge:							
Gessie	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, flooding.	Limitation: erodes easily.	Limitation: erodes easily.
Gf:							
Gessie	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, flooding.	Limitation: erodes easily.	Limitation: erodes easily.
GgC2:							
Gilpin	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: depth to rock, slope.	Limitation: depth to rock, large stones, slope.	Limitation: depth to rock, large stones, slope.
GhC:							
Gilpin	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: depth to rock, slope.	Limitation: depth to rock, large stones, slope.	Limitation: depth to rock, large stones, slope.
Tilsit	Moderate: depth to rock, seepage.	Severe: piping.	Severe: no water.	Limitation: percs slowly, slope.	Limitation: percs slowly, rooting depth, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
GnA:							
Glenford	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: frost action.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily.
GnB:							
Glenford	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, slope.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
HaB:							
Haubstadt	Moderate: seepage, slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
HaC2:							
Haubstadt	Severe: slope.	Moderate: piping, thin layer, wetness.	Severe: no water.	Limitation: percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
Hd:							
Haymond	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, flooding.	Limitation: erodes easily.	Limitation: erodes easily.
HeA:							
Henshaw	Slight	Severe: piping, wetness.	Severe: slow refill.	Favorable	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
HkD2:							
Hickory	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.
HkE2:							
Hickory	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.
Ht:							
Huntington	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Limitation: deep to water.	Limitation: flooding.	Favorable	Favorable.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
KaA:							
Kendallville	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: rooting depth.	Limitation: erodes easily.	Limitation: erodes easily, rooting depth.
KaB:							
Kendallville	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: rooting depth, slope.	Limitation: erodes easily.	Limitation: erodes easily, rooting depth.
KeC2:							
Kendallville	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
Eldean	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, erodes easily, slope.	Limitation: erodes easily, slope, too sandy.	Limitation: droughty, erodes easily, slope.
KeD2:							
Kendallville	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
Eldean	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, erodes easily, slope.	Limitation: erodes easily, slope, too sandy.	Limitation: droughty, erodes easily, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
KeE2:							
Kendallville	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
Eldean	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, erodes easily, slope.	Limitation: erodes easily, slope, too sandy.	Limitation: droughty, erodes easily, slope.
Kn:							
Kinn	Severe: seepage.	Severe: piping.	Severe: slow refill.	Limitation: flooding, frost action.	Limitation: flooding, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily.
Ko:							
Kokomo	Slight	Severe: ponding.	Severe: slow refill.	Limitation: frost action, ponding.	Limitation: ponding.	Limitation: ponding.	Limitation: wetness.
Kp:							
Kokomo	Slight	Severe: ponding.	Severe: slow refill.	Limitation: frost action, ponding.	Limitation: ponding.	Limitation: ponding.	Limitation: wetness.
LfC2:							
Latham	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: frost action, percs slowly, thin layer.	Limitation: percs slowly, slope, wetness.	Limitation: area reclaim, erodes easily, slope.	Limitation: area reclaim, erodes easily, slope.
LfD2:							
Latham	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: frost action, percs slowly, thin layer.	Limitation: percs slowly, slope, wetness.	Limitation: area reclaim, erodes easily, slope.	Limitation: area reclaim, erodes easily, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
LfE:							
Latham	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: frost action, percs slowly, thin layer.	Limitation: percs slowly, slope, wetness.	Limitation: area reclaim, erodes easily, slope.	Limitation: area reclaim, erodes easily, slope.
LgD:							
Latham	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: frost action, percs slowly, thin layer.	Limitation: percs slowly, slope, wetness.	Limitation: area reclaim, erodes easily, slope.	Limitation: area reclaim, erodes easily, slope.
Wharton	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
LrB:							
Libre	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth.	Limitation: erodes easily.	Limitation: erodes easily, rooting depth.
LrC2:							
Libre	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
MaB:							
Markland	Moderate: slope.	Moderate: hard to pack, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, percs slowly, slope.	Limitation: erodes easily, percs slowly.	Limitation: erodes easily, percs slowly.
MbC2:							
Markland	Severe: slope.	Moderate: hard to pack, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, percs slowly, slope.	Limitation: erodes easily, percs slowly, slope.	Limitation: erodes easily, percs slowly, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
MbD2:							
Markland	Severe: slope.	Moderate: hard to pack, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, percs slowly, slope.	Limitation: erodes easily, percs slowly, slope.	Limitation: erodes easily, percs slowly, slope.
MbE2:							
Markland	Severe: slope.	Moderate: hard to pack, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, percs slowly, slope.	Limitation: erodes easily, percs slowly, slope.	Limitation: erodes easily, percs slowly, slope.
McA:							
Martinsville	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Favorable	Limitation: erodes easily.	Limitation: erodes easily.
MdA:							
McGary	Slight	Severe: wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: percs slowly, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
MdB:							
McGary	Moderate: slope.	Severe: wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
MeC2:							
Mentor	Severe: slope.	Severe: piping.	Moderate: deep to water, slow refill.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.
MeD2:							
Mentor	Severe: slope.	Severe: piping.	Moderate: deep to water, slow refill.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
MfA:							
Mentor	Moderate: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily.
MgA:							
Mentor	Moderate: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily.
MgB:							
Mentor	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily.	Limitation: erodes easily.
MhB:							
Miamian	Moderate: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily.	Limitation: erodes easily, rooting depth.
MhB2:							
Miamian	Moderate: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily.	Limitation: erodes easily, rooting depth.
MhC2:							
Miamian	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
MhD2:							
Miamian	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
MhE:							
Miamian	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
MmC2:							
Miamian	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
MmD2:							
Miamian	Severe: slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily, slope.	Limitation: erodes easily, rooting depth, slope.
MnB:							
Miamian	Moderate: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: erodes easily.	Limitation: erodes easily, rooting depth.
Lewisburg	Moderate: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
MoB:							
Milton	Moderate: depth to rock, seepage, slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope, thin layer.	Limitation: area reclaim, depth to rock.	Limitation: depth to rock, erodes easily.
MoC2:							
Milton	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope, thin layer.	Limitation: area reclaim, depth to rock, slope.	Limitation: depth to rock, erodes easily, slope.
MoE2:							
Milton	Severe: slope.	Severe: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope, thin layer.	Limitation: area reclaim, depth to rock, slope.	Limitation: depth to rock, erodes easily, slope.
NeC2:							
Negley	Severe: seepage, slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
NeD2:							
Negley	Severe: seepage, slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
NeE2:							
Negley	Severe: seepage, slope.	Moderate: thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
NnA:							
Nineveh	Severe: seepage.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Favorable	Limitation: too sandy.	Favorable.
NnB:							
Nineveh	Severe: seepage.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: too sandy.	Favorable.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
ObA:							
Ockley	Severe: seepage.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Favorable	Favorable	Favorable.
ObB:							
Ockley	Severe: seepage.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Favorable	Favorable.
OmB:							
Omulga	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
OmC2:							
Omulga	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
Or:							
Orrville	Moderate: seepage.	Severe: piping, wetness.	Severe: cutbanks cave.	Limitation: flooding, frost action.	Limitation: flooding, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
OwB:							
Otwell	Moderate: slope.	Moderate: thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
Pc:							
Patton	Moderate: seepage.	Severe: ponding.	Severe: cutbanks cave.	Limitation: frost action, ponding.	Limitation: ponding.	Limitation: erodes easily, ponding.	Limitation: erodes easily, wetness.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Pg:							
Peoga	Slight	Severe: ponding.	Severe: no water.	Limitation: frost action, percs slowly, ponding.	Limitation: percs slowly, ponding, rooting depth.	Limitation: erodes easily, percs slowly, ponding.	Limitation: erodes easily, rooting depth, wetness.
PkA:							
Pike	Moderate: seepage.	Moderate: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily.
PkB:							
Pike	Moderate: seepage, slope.	Moderate: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, slope.	Limitation: erodes easily.	Limitation: erodes easily.
Pn:							
Pits, gravel.							
Po:							
Pits, quarry.							
Pp:							
Pope	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily.
PtB:							
Princeton	Severe: seepage.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: slope, soil blowing.	Limitation: soil blowing.	Favorable.
PtC:							
Princeton	Severe: seepage, slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: slope, soil blowing.	Limitation: slope, soil blowing.	Limitation: slope.
PtD:							
Princeton	Severe: seepage, slope.	Moderate: piping, thin layer.	Severe: no water.	Limitation: deep to water.	Limitation: slope, soil blowing.	Limitation: slope, soil blowing.	Limitation: slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
RbA:							
Rainsboro	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: percs slowly, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
RbB:							
Rainsboro	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
RbC2:							
Rainsboro	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
RcF:							
Rigley	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
Rock outcrop.							
RdD2:							
Rodman	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, slope.	Limitation: slope, too sandy.	Limitation: droughty, slope.
RdE2:							
Rodman	Severe: seepage, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, slope.	Limitation: slope, too sandy.	Limitation: droughty, slope.
Rn:							
Ross	Severe: seepage.	Severe: piping.	Moderate: deep to water, slow refill.	Limitation: deep to water.	Limitation: flooding.	Favorable	Favorable.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ro:							
Rossburg	Severe: seepage.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily.	Limitation: erodes easily.	Limitation: erodes easily.
RpA:							
Rossmoyne	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: percs slowly, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
RpB:							
Rossmoyne	Moderate: seepage, slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
RpC2:							
Rossmoyne	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
RsB:							
Rossmoyne	Moderate: seepage, slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
Cana	Moderate: seepage, slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
RsC2:							
Rossmoyne	Severe: slope.	Moderate: piping, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
RsC2:							
Cana	Severe: slope.	Moderate: hard to pack, thin layer, wetness.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, rooting depth, slope.
SfD:							
Shelocta	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
SgF:							
Shelocta	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
Brownsville	Severe: seepage, slope.	Severe: large stones, piping.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, large stones, slope.	Limitation: large stones, slope.	Limitation: droughty, large stones, slope.
ShE:							
Shelocta	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
Cruze	Severe: slippage, slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slippage, slope.	Limitation: erodes easily, percs slowly, slope.
Weikert	Severe: depth to rock, slope.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Limitation: depth to rock, slope.	Limitation: depth to rock, slope.	Limitation: depth to rock, slope.
SkE:							
Shelocta	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.
Rigley	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: slope.	Limitation: slope.	Limitation: slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
Sp:							
Skidmore	Severe: seepage.	Severe: seepage.	Moderate: deep to water, depth to rock.	Limitation: deep to water.	Limitation: droughty, flooding.	Limitation: large stones.	Limitation: droughty, large stones.
St:							
Sloan	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Limitation: flooding, frost action.	Limitation: flooding, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, wetness.
SuB:							
Spargus	Moderate: seepage, slope.	Severe: piping.	Moderate: deep to water, slow refill.	Limitation: deep to water.	Limitation: slope.	Favorable	Favorable.
Sv:							
Stonelick	Severe: seepage.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Limitation: flooding.	Limitation: too sandy.	Favorable.
Sw:							
Stonelick	Severe: seepage.	Severe: piping, seepage.	Severe: no water.	Limitation: deep to water.	Limitation: droughty, flooding, soil blowing.	Limitation: soil blowing, too sandy.	Limitation: droughty.
TbA:							
Taggart	Moderate: seepage.	Severe: wetness.	Severe: cutbanks cave, slow refill.	Limitation: frost action, percs slowly.	Limitation: percs slowly, wetness.	Limitation: erodes easily, percs slowly, wetness.	Limitation: erodes easily, percs slowly, wetness.
ThC3:							
Thrifton	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: wetness.	Limitation: droughty, rooting depth, slope.

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
ThD3:							
Thrifton	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: slope, wetness.	Limitation: droughty, rooting depth, slope.
ThE3:							
Thrifton	Severe: slope.	Severe: piping.	Severe: no water.	Limitation: deep to water.	Limitation: erodes easily, rooting depth, slope.	Limitation: slope, wetness.	Limitation: droughty, rooting depth, slope.
TnA:							
Tilsit	Moderate: depth to rock, seepage.	Severe: piping.	Severe: no water.	Limitation: percs slowly.	Limitation: percs slowly, rooting depth, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, rooting depth.
To:							
Tioga	Severe: seepage.	Severe: piping.	Severe: cutbanks cave.	Limitation: deep to water.	Limitation: droughty, erodes easily, flooding.	Limitation: erodes easily.	Limitation: droughty, erodes easily.
TyA:							
Tyler	Slight	Severe: wetness.	Severe: no water.	Limitation: frost action, percs slowly.	Limitation: percs slowly, wetness.	Limitation: erodes easily, rooting depth, wetness.	Limitation: erodes easily, rooting depth, wetness.
Ud:							
Udorthents.							
W:							
Water.							

Table 21.--Water Management--Continued

Map symbol and soil name	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Terraces and diversions	Grassed waterways
WcA:							
Warsaw	Severe: seepage.	Severe: seepage.	Severe: no water.	Limitation: deep to water.	Favorable	Limitation: too sandy.	Favorable.
Wk:							
Westland	Severe: seepage.	Severe: ponding, thin layer.	Severe: cutbanks cave.	Limitation: frost action, ponding.	Limitation: ponding.	Limitation: ponding.	Limitation: wetness.
WtB:							
Wyatt	Moderate: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, wetness.	Limitation: erodes easily, percs slowly.
WyC2:							
Wyatt	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, percs slowly, slope.
WyD2:							
Wyatt	Severe: slope.	Severe: hard to pack.	Severe: no water.	Limitation: frost action, percs slowly, slope.	Limitation: percs slowly, slope, wetness.	Limitation: erodes easily, slope, wetness.	Limitation: erodes easily, percs slowly, slope.

Table 22.--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	
Aa:												
Adrian----------	0-22	Muck----------	PT	A-8	---	---	---	---	---	---	---	---
	22-80	Sand, loamy sand, fine sand, very gravelly sandy loam, very gravelly loamy sand.	SM, SP	A-1, A-2, A-3	0	0	80-100	60-100	35-75	0-30	0-14	NP
AcC2:												
Alexandria------	0-7	Silt loam--------	CL, ML, CL-ML	A-4, A-6	---	0-2	95-100	90-100	85-100	65-90	15-40	NP-15
	7-38	Silty clay loam, clay loam, clay.	CH, CL	A-6, A-7	---	0-2	90-100	75-100	70-100	55-90	30-52	15-25
	38-80	Clay loam, loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	---	0-5	80-100	75-100	70-95	55-85	15-40	NP-15
AcD2:												
Alexandria------	0-6	Silt loam--------	CL, CL-ML, ML	A-4, A-6	---	0-2	95-100	90-100	85-100	65-90	15-40	NP-15
	6-27	Silty clay loam, clay loam, clay.	CH, CL	A-6, A-7	---	0-2	90-100	75-100	70-100	55-90	30-52	15-25
	27-80	Clay loam, loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	---	0-5	80-100	75-100	70-95	55-85	15-40	NP-15
AcE2:												
Alexandria------	0-4	Silt loam--------	CL, ML, CL-ML	A-4, A-6	---	0-2	95-100	90-100	85-100	65-90	15-40	NP-15
	4-37	Silty clay loam, clay loam, clay.	CH, CL	A-6, A-7	---	0-2	90-100	75-100	70-100	55-90	30-52	15-25
	37-80	Clay loam, loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6	---	0-5	80-100	75-100	70-95	55-85	15-40	NP-15
AeE2:												
Alexandria------	0-9	Silt loam--------	CL, CL-ML, ML	A-4, A-6	---	0-2	95-100	90-100	85-100	65-90	15-40	NP-15
	9-38	Silty clay loam, clay loam, clay.	CH, CL	A-6, A-7	---	0-2	90-100	75-100	70-100	55-90	30-52	15-25
	38-80	Clay loam, loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	---	0-5	80-100	75-100	70-95	55-85	15-40	NP-15

Table 22.--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	
AeE2:												
Fox----------	0-3	Loam----------	CL, ML, CL-ML	A-4	0	0	95-100	95-100	85-95	65-90	0-25	3-8
	3-12	Silty clay loam, silt loam, loam.	CL	A-6, A-7	0-1	0	95-100	85-100	60-100	50-90	22-50	10-25
	12-31	Clay loam, sandy clay loam, gravelly loam, gravelly clay loam.	GC, CL, SC	A-6, A-2, A-7	0-1	0-5	65-100	55-100	30-100	15-80	22-45	10-25
	31-80	Sand and gravel, sand, coarse sand, gravelly loamy sand.	GP-GM, GP, SP, SP-SM	A-1, A-2, A-3	0-3	0-10	30-100	20-95	10-90	2-10	0-14	NP
AvA:												
Avonburg--------	0-9	Silt loam--------	CL, ML, CL-ML	A-4, A-6	0	0	100	100	90-100	80-90	23-40	3-15
	9-35	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	90-100	85-90	25-45	5-20
	35-58	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-7-6, A-6	0	0	100	95-100	90-95	75-85	25-45	5-20
	58-80	Clay loam, silty clay loam.	CL	A-6, A-7	0-1	0-1	90-100	85-95	70-90	55-70	30-45	10-25
AvB:												
Avonburg--------	0-8	Silt loam--------	CL-ML, CL, ML	A-4, A-6	0	0	100	100	90-100	80-90	23-40	3-15
	8-33	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	90-100	85-90	25-45	5-20
	33-58	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0	100	95-100	90-95	75-85	25-45	5-20
	58-80	Clay loam--------	CL	A-7, A-6	0-1	0-1	90-100	85-95	70-90	55-70	36-48	15-25
BeD:												
Berks----------	0-8	Channery silt loam.	GM, GC, ML, SC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	8-26	Channery loam, very channery loam, channery silt loam, very channery silt 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
	26-33	Channery loam, very channery loam, channery silt 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
	33-35	Weathered bedrock.	---	---	---	---	---	---	---	---	0-14	---

Table 22.--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	
BeE:												
Berks----------	0-3	Channery silt loam.	GC, SC, GM, ML	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	3-24	Very channery silt loam, channery loam, very channery loam, channery silt loam, extremely channery loam.	GM, SC, GC, SM	A-2, A-1, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	24-32	Channery loam, very channery loam, channery silt loam, extremely channery loam, extremely channery silt loam.	GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	32-35	Weathered bedrock.	---	---	---	---	---	---	---	---	0-14	---
BgC:												
Berks----------	0-5	Channery silt loam.	GM, GC, ML, SC	A-2, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	5-23	Channery loam, very channery loam, channery silt loam, extremely channery silt loam, very channery silt loam.	GM, GC, SC, SM	A-1, A-2, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	23-33	Channery loam, very channery loam, channery silt loam, extremely channery loam, extremely channery silt loam.	GM, SM	A-1, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	33-35	Weathered bedrock.	---	---	---	---	---	---	---	---	0-14	---

Table 22.--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	
BgC:												
Tarhollow-------	0-5	Silt loam--------	CL, CL-ML, ML	A-4	0	0	95-100	90-100	80-100	70-100	22-35	3-10
	5-31	Silt loam, silty clay loam.	CL, ML	A-6, A-7	0	0	95-100	90-100	85-100	80-100	30-50	10-20
	31-44	Silty clay loam, silty clay, clay, channery silty clay, channery silty clay loam.	CH, CL	A-6, A-7	---	0-5	90-100	80-100	70-100	60-100	35-60	20-35
	44-55	Silty clay loam, silty clay, channery silty clay, channery silty clay loam.	CH, CL	A-6, A-7	---	0-10	80-100	65-100	60-100	55-95	35-55	15-35
	55-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
CaB:												
Cana----------	0-8	Silt loam--------	CL-ML, CL, ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	15-40	NP-15
	8-13	Silt loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6	0	0	95-100	95-100	85-100	65-95	15-40	NP-15
	13-40	Clay loam, silty clay loam, clay, silty clay.	CL	A-6, A-7	---	0-5	85-100	85-100	70-100	55-95	30-45	15-25
	40-48	Clay, channery silty clay, very channery silty clay loam, silty clay.	CH, CL	A-7	---	0-10	70-95	60-95	55-90	50-85	40-55	25-35
	48-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
CaC2:												
Cana----------	0-8	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	15-40	NP-15
	8-13	Silt loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	65-95	15-40	NP-15
	13-32	Clay loam, silty clay loam, clay.	CL	A-6, A-7	---	0-5	85-100	85-100	70-100	55-95	30-45	15-25
	32-42	Clay, channery silty clay, very channery silty clay loam, silty clay, silty clay loam.	CH, CL	A-7	---	0-10	70-95	60-95	55-90	50-85	40-55	25-35
	42-51	Silty clay, clay, silty clay loam, channery silty clay, channery silty clay loam.	CH, CL	A-7	---	---	---	---	---	---	40-55	25-35
	51-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
CaD2:												
Cana----------	0-6	Silt loam--------	CL, ML, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	15-40	NP-15
	6-13	Silt loam, silty clay loam.	CL-ML, CL, ML	A-6, A-4	0	0	95-100	95-100	85-100	65-95	15-40	NP-15
	13-42	Clay loam, silty clay loam, clay.	CL	A-6, A-7	---	0-5	85-100	85-100	70-100	55-95	30-45	15-25
	42-51	Clay, channery silty clay, very channery silty clay loam, silty clay, silty clay loam.	CH, CL	A-7	---	0-10	70-95	60-95	55-90	50-85	40-55	25-35
	51-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
CaE2:												
Cana	0-6	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	15-40	NP-15
	6-15	Silt loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	65-95	15-40	NP-15
	15-35	Clay loam, silty clay loam, clay, silty clay, clay, silty clay.	CL	A-6, A-7	---	0-5	85-100	85-100	70-100	55-95	30-45	15-25
	35-45	Clay, channery silty clay, very channery silty clay loam, silty clay, silty clay loam.	CH, CL	A-7	---	0-10	70-95	60-95	55-90	50-85	40-55	25-35
	45-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Cd:												
Carlisle	0-56	Muck	PT	A-8	---	---	---	---	---	---	---	---
	56-80	Loam, silt loam, gravelly sandy loam.	SC-SM, SM	A-1, A-2	0	0-9	55-90	50-75	30-60	15-50	0-20	2-7
CeD:												
Casco	0-7	Gravelly loam	SC-SM, SM	A-1, A-2	0	0-9	55-90	50-75	30-60	15-50	0-20	2-7
	7-14	Clay loam, sandy clay loam, gravelly loam, gravelly clay loam.	CL, GC, SC	A-2, A-6, A-7	0-1	0-9	55-100	50-100	40-90	20-80	25-46	11-26
	14-60	Stratified gravel to sand.	GP, SP-SM, GP-GM, SP	A-1, A-3, A-2	0-3	0-30	25-100	20-95	10-75	2-10	0-14	NP
Rodman	0-7	Gravelly loam	ML, CL, SC, SM	A-4	0	0-2	70-85	65-75	60-75	36-65	0-30	3-9
	7-14	Gravelly loam, sandy loam, loam.	CL, SM, ML, SC	A-1, A-2, A-4	0	0-2	70-85	60-85	40-75	20-55	0-30	NP-10
	14-60	Stratified extremely gravelly coarse sand to sand.	GP, GP-GM, SP-SM, SP	A-1	0-1	1-5	30-70	20-55	7-20	2-10	0	NP

Table 22.--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	
CgA:												
Celina----------	0-8	Silt loam--------	ML	A-4	0	0	100	90-100	90-100	70-85	26-40	3-10
	8-16	Silt loam--------	ML	A-4	0	0	100	90-100	90-100	70-85	26-40	3-10
	16-33	Clay, clay loam, silty clay loam.	CL	A-6, A-7	0	0	100	90-100	80-95	70-85	32-48	12-28
	33-80	Loam, silt loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-95	75-90	65-90	50-80	20-36	4-16
CgB:												
Celina----------	0-9	Silt loam--------	ML	A-4	0	0	100	90-100	90-100	70-85	26-40	3-10
	9-15	Silt loam--------	ML	A-4	0	0	100	90-100	90-100	70-85	26-40	3-10
	15-37	Clay, clay loam, silty clay loam.	CL	A-6, A-7	0	0	100	90-100	80-95	70-85	32-48	12-28
	37-80	Loam, silt loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-95	75-90	65-90	50-80	20-36	4-16
CgB2:												
Celina----------	0-6	Silt loam--------	ML	A-4	0	0	100	90-100	90-100	70-85	26-40	3-10
	6-34	Clay, clay loam, silty clay loam.	CL	A-6, A-7	0	0	100	90-100	80-95	70-85	32-48	12-28
	34-80	Loam, silt loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	75-95	75-90	65-90	50-80	20-36	4-16
ChA:												
Chavies---------	0-10	Silt loam--------	CL-ML, SM, ML, SC-SM	A-4	0	0	85-100	75-100	40-90	40-75	0-25	NP-5
	10-70	Fine sandy loam, silt loam, loam.	ML, SM	A-4	0	0	85-100	75-100	65-100	45-85	0-35	NP-8
	70-80	Fine sandy loam, gravelly fine sandy loam, loam, loamy sand.	ML, CL-ML, SC-SM, SM	A-1-b, A-2, A-4	---	0-5	70-100	60-95	40-85	20-75	0-25	NP-5

Table 22.--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	
CmA:												
Cidermill-------	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	8-30	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	30-43	Loam, gravelly clay loam, very gravelly sandy loam, sandy loam.	GM, CL, ML, SM	A-4, A-2, A-6	---	0-5	65-100	40-85	35-75	30-70	0-30	NP-15
	43-80	Stratified very gravelly coarse sand to gravelly loamy sand to gravelly sandy loam.	GW, GM, SM, SP	A-1	---	0-15	30-70	25-65	10-45	2-25	0-14	NP
CmB:												
Cidermill-------	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	10-30	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	30-44	Loam, gravelly clay loam, very gravelly sandy loam, sandy loam.	CL, GM, SM, ML	A-2, A-6, A-4	---	0-5	65-100	40-85	35-75	30-70	0-30	NP-15
	44-80	Stratified very gravelly coarse sand to gravelly loamy sand to gravelly sandy loam.	GW, SM, GM, SP	A-1	---	0-15	30-70	25-65	10-45	2-25	0-14	NP
Cp:												
Clifty----------	0-10	Silt loam--------	CL, CL-ML, ML	A-4	0	0	90-100	85-95	65-85	50-75	20-35	2-10
	10-28	Gravelly silt loam, gravelly loam, gravelly sandy clay loam, silt loam.	CL-ML, ML, GC-GM, GM	A-4	---	0-15	55-75	50-70	45-65	35-60	20-35	2-10
	28-80	Gravelly silt loam, very gravelly loam, gravelly sandy loam.	GC-GM, GM, SM	A-1, A-4, A-2	---	0-25	40-75	35-70	25-60	15-50	0-30	NP-7

Table 22.--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	
CrA:												
Coolville-------	0-18	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	70-90	15-40	NP-15
	18-33	Silty clay loam--	CL, ML	A-6, A-7	0	0	95-100	85-100	80-100	75-95	30-45	NP-22
	33-55	Clay, silty clay, silty clay loam.	CH, CL	A-7	---	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	55-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
CrB:												
Coolville-------	0-11	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	70-90	15-40	NP-15
	11-17	Silty clay loam--	CL, ML	A-6, A-7	0	0	95-100	85-100	80-100	75-95	30-45	NP-22
	17-49	Clay, silty clay, silty clay loam.	CH, CL	A-7	---	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	49-54	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
CrC2:												
Coolville-------	0-5	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	70-90	15-40	NP-15
	5-14	Silty clay loam--	CL, ML	A-6, A-7	0	0	95-100	85-100	80-100	75-95	30-45	NP-22
	14-32	Clay, silty clay, silty clay loam.	CL, CH	A-7	---	0-5	95-100	85-100	80-100	75-95	45-65	20-36
	32-42	Silty clay, channery silty clay loam, silty clay loam.	CH, CL	A-7	---	0-5	95-100	60-100	55-100	50-95	45-65	20-36
	42-50	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
CvA:												
Crosby----------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	80-100	50-90	15-30	3-15
	10-36	Clay loam, silty clay loam, clay.	CL	A-6, A-7	0	0-3	90-100	85-100	75-95	65-95	35-50	15-25
	36-80	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0-3	85-100	80-95	75-90	50-65	15-30	3-15
CvB:												
Crosby----------	0-8	Silt loam--------	CL, ML, CL-ML	A-4, A-6	0	0	100	95-100	80-100	50-90	15-30	3-15
	8-25	Clay loam, silty clay loam, clay, silty clay.	CL	A-6, A-7	0	0-3	90-100	85-100	75-95	65-95	35-50	15-25
	25-80	Loam----------	CL, ML, CL-ML	A-4, A-6	0	0-3	85-100	80-95	75-90	50-65	15-30	3-15

Table 22.--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	
CwC2:												
Cruze----------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	---	0-5	85-100	75-100	70-95	60-80	15-40	NP-15
	7-23	Silt loam, silty clay loam, channery silty clay loam.	CL, GC, SC	A-6, A-7	---	0-10	70-100	55-100	55-95	45-85	30-50	10-25
	23-31	Silty clay, silty clay loam, channery silty clay loam.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-65	15-35
	31-60	Silty clay, channery silty clay.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-70	15-40
	60-65	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
CwD:												
Cruze----------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	---	0-5	85-100	75-100	70-95	60-80	15-40	NP-15
	7-18	Silt loam, silty clay loam, channery silty clay loam.	CL, SC, GC	A-6, A-7	---	0-10	70-100	55-100	55-95	45-85	30-50	10-25
	18-37	Silty clay, silty clay loam, channery silty clay loam.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-65	15-35
	37-48	Silty clay, channery silty clay.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-70	15-40
	48-53	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
CwE:												
Cruze----------	0-9	Silt loam--------	CL, CL-ML, ML	A-4, A-6	---	0-5	85-100	75-100	70-95	60-80	15-40	NP-15
	9-20	Silt loam, silty clay loam, channery silty clay loam.	CL, GC, SC	A-6, A-7	---	0-10	70-100	55-100	55-95	45-85	30-50	10-25
	20-37	Silty clay, silty clay loam, channery silty clay loam.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-65	15-35
	37-48	Silty clay, channery silty clay.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-70	15-40
	48-53	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
DAM. Dam												
EeA:												
Eldean----------	0-13	Loam----------	CL, ML, CL-ML	A-4, A-6	0	0	85-100	80-100	70-100	55-90	20-40	4-14
	13-27	Clay, sandy clay, gravelly clay loam, gravelly clay.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	30-45	NP-22
	27-33	Very gravelly clay loam, loam, gravelly sandy loam, very gravelly loam.	CL, GC, SC	A-2, A-6, A-7	---	0-10	55-85	45-85	45-75	30-60	38-50	12-23
	33-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly sand.	GP-GM, GM, SM, SP-SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP

Table 22.--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	
EeB:												
Eldean----------	0-7	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	70-100	55-90	20-40	4-14
	7-30	Clay, sandy clay, gravelly clay loam, gravelly clay.	ML, CL	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	30-45	NP-21
	30-36	Very gravelly clay loam, loam, gravelly sandy loam, very gravelly loam.	CL, GC, SC	A-2, A-6, A-7	---	0-10	55-85	45-85	45-75	30-60	38-50	12-23
	36-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly sand.	GM, SP-SM, GP-GM, SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP
EeC2:												
Eldean----------	0-6	Loam----------	CL, ML, CL-ML	A-4, A-6	0	0	85-100	80-100	70-100	55-90	20-40	4-14
	6-24	Clay, sandy clay, gravelly clay loam, gravelly clay.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	30-45	NP-22
	24-30	Very gravelly clay loam, loam, gravelly sandy loam, very gravelly loam.	CL, SC, GC	A-2, A-6, A-7	---	0-10	55-85	45-85	45-75	30-60	38-50	12-23
	30-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly sand.	GP-GM, GM, SM, SP-SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP

Table 22.--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	
EgA:												
Eldean----------	0-9	Gravelly loam----	GM, ML, CL-ML, SM	A-4, A-6	---	0-10	65-90	60-80	55-75	40-60	25-40	4-12
	9-27	Clay, sandy clay, gravelly clay loam, gravelly clay.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	30-45	NP-22
	27-32	Very gravelly clay loam, loam, gravelly sandy loam, very gravelly loam.	GC, CL, SC	A-4, A-2, A-6, A-7	---	0-10	55-85	45-85	45-75	30-60	30-45	8-20
	32-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly sand.	GP-GM, GM, SM, SP-SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP
EgB:												
Eldean----------	0-8	Gravelly loam----	CL-ML, SM, GM, ML	A-4, A-6	---	0-10	65-90	60-80	55-75	40-60	25-40	4-12
	8-26	Clay, sandy clay, gravelly clay loam, gravelly clay.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	30-45	NP-22
	26-31	Very gravelly clay loam, loam, gravelly sandy loam, very gravelly loam, very gravelly sandy loam.	CL, GC, SC	A-2, A-4, A-7, A-6	---	0-10	55-85	45-85	45-75	30-60	30-45	8-20
	31-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly sandy loam.	GM, SP-SM, GP-GM, SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP

Table 22.--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	
EgC2:												
Eldean----------	0-3	Gravelly loam----	GM, ML, CL-ML, SM	A-4, A-6	---	0-10	65-90	60-80	55-75	40-60	25-40	4-12
	3-27	Clay, sandy clay, gravelly clay loam, gravelly clay.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	30-45	NP-22
	27-32	Very gravelly clay loam, loam, gravelly sandy loam, very gravelly loam.	GC, CL, SC	A-4, A-6, A-2, A-7	---	0-10	55-85	45-85	45-75	30-60	30-45	8-20
	32-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly sand.	GP-GM, GM, SM, SP-SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP
ErD:												
Ernest----------	0-8	Silt loam--------	CL, ML, CL-ML	A-4, A-6	0	0-10	85-100	80-100	70-95	60-95	15-40	NP-15
	8-31	Silty clay loam, silt loam, channery silt loam.	CL, CL-ML, ML	A-4, A-6	0-5	0-15	75-95	75-95	65-90	55-90	15-40	NP-15
	31-62	Channery silt loam, channery loam, silty clay loam.	CL, SC, GM, ML	A-6, A-4, A-7	0-5	0-20	70-95	55-95	55-90	45-90	20-45	4-18
	62-70	Loam, channery silt loam, silt loam, silty clay loam.	CL, SC, GM, ML	A-6, A-4, A-7	0-5	0-20	70-95	45-95	45-90	40-90	20-45	4-18
EuA:												
Euclid----------	0-10	Silt loam--------	CL-ML, ML	A-4	0	0	100	100	95-100	85-100	25-35	4-10
	10-47	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	80-100	25-40	4-15
	47-80	Silty clay loam, silt loam, loam.	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	80-100	70-95	20-35	2-13
FhA:												
Fitchville------	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-95	24-40	4-16
	8-56	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	0	100	100	90-100	80-100	28-50	5-23
	56-80	Silt loam, loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	60-100	20-40	3-18

Table 22.--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	
FhB:												
Fitchville------	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-95	24-40	4-16
	8-56	Silt loam, silty clay loam.	CL, ML	A-4, A-7, A-6	0	0	100	100	90-100	80-100	28-50	5-23
	56-80	Silt loam, loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	60-100	20-40	3-18
FnB:												
Fox----------	0-9	Loam----------	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-95	65-90	0-25	3-8
	9-28	Silty clay loam, silt loam, clay loam, gravelly clay loam.	CL	A-6, A-7	0-1	0	95-100	85-100	60-100	50-90	22-50	10-25
	28-30	Clay loam, sandy clay loam, gravelly loam, gravelly clay loam.	CL, GC, SC	A-6, A-2, A-7	0-1	0-5	65-100	55-100	30-100	15-80	22-45	10-25
	30-60	Sand, gravel, coarse sand.	GP-GM, GP, SP, SP-SM	A-1, A-2, A-3	0-3	0-10	30-100	20-95	10-90	2-10	0-14	NP
FnC2:												
Fox----------	0-9	Loam----------	CL, CL-ML, ML	A-4	0	0	95-100	95-100	85-95	65-90	0-25	3-8
	9-18	Silty clay loam, silt loam, clay loam, gravelly clay loam.	CL	A-6, A-7	0-1	0	95-100	85-100	60-100	50-90	22-50	10-25
	18-34	Clay loam, sandy clay loam, gravelly loam, gravelly clay loam.	CL, GC, SC	A-2, A-6, A-7	0-1	0-5	65-100	55-100	30-100	15-80	22-45	10-25
	34-80	Sand, gravel, coarse sand, very gravelly loamy sand.	GP-GM, SP, GP, SP-SM	A-1, A-2, A-3	0-3	0-10	30-100	20-95	10-90	2-10	0-14	NP
Ge:												
Gessie----------	0-10	Silt loam--------	CL, ML	A-4, A-6	0	0	100	95-100	80-100	70-85	26-40	3-15
	10-80	Silt loam, loam--	CL, ML	A-4, A-6	0	0	100	95-100	80-100	70-85	26-40	3-15
Gf:												
Gessie----------	0-8	Silt loam--------	CL, ML	A-4, A-6	0	0	100	95-100	80-100	70-85	26-40	3-15
	8-80	Silt loam, loam--	CL, ML	A-4, A-6	0	0	100	95-100	80-100	70-85	26-40	3-15

Table 22.--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	
GgC2:												
Gilpin----------	0-9	Silt loam--------	CL, CL-ML	A-4, A-6	---	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	9-23	Channery loam, channery silt loam, silty clay loam, silt loam.	CL-ML, CL, GC, SC	A-2, A-4, A-6	---	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	23-32	Channery loam, very channery silt loam, very channery silty clay loam, loam.	GC, GC-GM	A-1, A-6, A-2, A-4	---	0-35	25-55	20-50	15-45	15-40	20-40	4-15
	32-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
GhC:												
Gilpin----------	0-6	Silt loam--------	CL, CL-ML	A-4, A-6	---	0-5	80-95	75-90	70-85	65-80	20-40	4-15
	6-27	Clay loam, channery loam, channery silt loam, silty clay loam, channery clay loam.	CL-ML, GC, CL, SC	A-2, A-6, A-4	---	0-30	50-95	45-90	35-85	30-80	20-40	4-15
	27-33	Channery loam, very channery silt loam, very channery silty clay loam, channery sandy loam, channery silt loam.	GC, GC-GM	A-1, A-2, A-6, A-4	---	0-35	25-55	20-50	15-45	15-40	20-40	4-15
	33-35	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Tilsit----------	0-5	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	60-100	20-35	4-15
	5-24	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	65-100	25-40	5-20
	24-44	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	85-100	75-100	65-100	25-45	5-25
	44-65	Silt loam, silty clay loam, silty clay, loam.	CL, CH, CL-ML	A-6, A-4, A-7	---	0-30	70-100	65-85	60-85	55-80	25-60	5-35
	65-70	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
GnA:												
Glenford--------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	10-45	Silty clay loam, silt loam.	CL, CL-ML, ML	A-6, A-4, A-7	0	0	100	100	95-100	80-100	25-45	5-18
	45-52	Silt loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-100	20-40	3-18
	52-80	Stratified fine sandy loam to silty clay loam, silt loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15
GnB:												
Glenford--------	0-9	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	4-14
	9-17	Silty clay loam, silt loam.	CL, CL-ML, ML	A-6, A-4, A-7	0	0	100	100	95-100	80-100	25-45	5-18
	17-47	Silt loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-100	20-40	3-18
	47-80	Stratified fine sandy loam to silty clay loam, silt loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-100	20-40	3-15
HaB:												
Haubstadt-------	0-9	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-100	25-40	4-14
	9-29	Silt loam, silty clay loam.	CL, ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	30-45	NP-22
	29-60	Loam, silt loam, clay loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	80-100	75-95	65-90	50-85	25-45	9-19
	60-80	Clay loam, loam, gravelly silty clay loam, silty clay loam.	CL, CL-ML, SC, GC	A-4, A-6	0	0	65-90	55-90	50-85	40-75	20-40	4-20
HaC2:												
Haubstadt-------	0-8	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	80-100	25-40	4-14
	8-24	Silt loam, silty clay loam.	CL, ML	A-6, A-4, A-7	0	0	100	100	90-100	80-100	30-45	NP-22
	24-40	Loam, silt loam, clay loam, silty clay loam.	CL	A-4, A-6, A-7	0	0	80-100	75-95	65-90	50-85	25-45	9-19
	40-80	Clay loam, loam, gravelly silty clay loam, silty clay loam.	CL-ML, CL, GC, SC	A-4, A-6	0	0	65-90	55-90	50-85	40-75	20-40	4-20

Table 22.--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	
Hd:												
Haymond---------	0-9	Silt loam--------	CL, CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	9-62	Silt loam--------	CL, ML, CL-ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	62-80	Fine sandy loam, silt loam, loam.	ML, SC, CL, SM	A-4, A-6	0	0	95-100	90-100	65-100	35-90	15-35	2-15
HeA:												
Henshaw---------	0-8	Silt loam--------	CL-ML, CL, ML	A-4	0	0	95-100	95-100	90-100	80-100	20-35	3-10
	8-42	Silty clay loam, silt loam.	CL	A-4, A-6	0	0	95-100	95-100	95-100	85-100	30-40	8-18
	42-62	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	75-100	25-40	5-15
HkD2:												
Hickory---------	0-5	Silt loam--------	CL	A-4, A-6	0	0-5	95-100	90-100	90-100	75-95	20-35	8-15
	5-42	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6, A-7	0-1	0-5	95-100	75-100	70-95	65-80	30-50	15-30
	42-80	Sandy loam, loam, gravelly clay loam, clay loam.	CL, CL-ML	A-4, A-6	0-1	0-5	85-100	75-95	70-95	60-80	20-40	5-20
HkE2:												
Hickory---------	0-13	Silt loam--------	CL	A-4, A-6	0	0-5	95-100	90-100	90-100	75-95	20-35	8-15
	13-46	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6, A-7	0-1	0-5	95-100	75-100	70-95	65-80	30-50	15-30
	46-80	Sandy loam, loam, gravelly clay loam, clay loam.	CL, CL-ML	A-4, A-6	0-1	0-5	85-100	75-95	70-95	60-80	20-40	5-20
Ht:												
Huntington------	0-12	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	15-40	NP-15
	12-55	Silt loam, silty clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-95	15-40	NP-15
	55-80	Stratified fine sand to silty clay loam, gravelly loamy sand, silt loam.	CL, SM, ML, SC	A-2, A-4	---	0-10	95-100	60-100	50-90	30-75	0-30	NP-10

Table 22.--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	
KaA:												
Kendallville----	0-8	Silt loam--------	ML	A-4, A-6	---	0-5	90-100	80-100	75-95	70-90	26-40	4-12
	8-36	Clay loam, gravelly loam, sandy clay loam, loam.	CL-ML, GC, CL, SC	A-4, A-6	---	0-5	70-100	60-95	50-80	45-75	25-40	5-15
	36-80	Loam, clay loam--	CL, CL-ML, ML	A-4, A-6	---	0-5	90-100	80-95	60-90	55-75	20-35	3-15
KaB:												
Kendallville----	0-6	Silt loam--------	ML	A-4, A-6	---	0-5	90-100	80-100	75-95	70-90	26-40	4-12
	6-34	Clay loam, gravelly loam, sandy clay loam, gravelly clay loam, loam.	CL-ML, CL, GC, SC	A-4, A-6	---	0-5	70-100	60-95	50-80	45-75	25-40	5-15
	34-80	Loam, clay loam--	CL, ML, CL-ML	A-4, A-6	---	0-5	90-100	80-95	60-90	55-75	20-35	3-15
KeC2:												
Kendallville----	0-9	Silt loam--------	ML	A-4, A-6	---	0-5	90-100	80-100	75-95	70-90	26-40	4-12
	9-39	Clay loam, gravelly loam, sandy clay loam, gravelly clay loam, loam.	CL-ML, CL, GC, SC	A-4, A-6	---	0-5	70-100	60-95	50-80	45-75	25-40	5-15
	39-80	Loam, clay loam--	CL, CL-ML, ML	A-4, A-6	---	0-5	90-100	80-95	60-90	55-75	20-35	3-15
Eldean----------	0-6	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	70-100	55-90	20-40	4-14
	6-36	Clay, sandy clay, gravelly clay loam, clay loam.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	38-50	12-23
	36-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly loamy sand.	GP-GM, GM, SM, SP-SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP
KeD2:												
Kendallville----	0-5	Silt loam--------	ML	A-4, A-6	---	0-5	90-100	80-100	75-95	70-90	26-40	4-12
	5-36	Clay loam, gravelly loam, sandy clay loam, gravelly clay loam, loam.	CL-ML, GC, CL, SC	A-4, A-6	---	0-5	70-100	60-95	50-80	45-75	25-40	5-15
	36-80	Loam, clay loam--	CL, CL-ML, ML	A-4, A-6	---	0-5	90-100	80-95	60-90	55-75	20-35	3-15

Table 22.--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	
KeD2:												
Eldean----------	0-3	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	70-100	55-90	20-40	4-14
	3-35	Clay, sandy clay, gravelly clay loam, clay loam.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	38-50	12-23
	35-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly sand.	GM, GP-GM, SP-SM, SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP
KeE2:												
Kendallville----	0-3	Silt loam--------	ML	A-4, A-6	---	0-5	90-100	80-100	75-95	70-90	26-40	4-12
	3-35	Clay loam, gravelly loam, sandy clay loam, loam.	CL-ML, CL, GC, SC	A-4, A-6	---	0-5	70-100	60-95	50-80	45-75	25-40	5-15
	35-80	Loam, clay loam--	CL, CL-ML, ML	A-4, A-6	---	0-5	90-100	80-95	60-90	55-75	20-35	3-15
Eldean----------	0-2	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	70-100	55-90	20-40	4-14
	2-22	Clay, sandy clay, gravelly clay loam.	CL, ML	A-6, A-7	---	0-5	75-100	60-100	55-95	50-80	38-50	12-23
	22-80	Stratified sand to extremely gravelly coarse sandy loam, very gravelly loamy sand.	GM, SP-SM, GP-GM, SM	A-1, A-2	---	0-15	30-70	20-50	5-40	0-35	0-14	NP
Kn:												
Kinn----------	0-20	Silt loam--------	ML, CL-ML, CL	A-4, A-6	---	---	---	95-100	80-100	55-90	20-35	2-15
	20-38	Loam, silt loam, silty clay loam.	ML, CL, CL-ML	A-6, A-4	---	---	---	95-100	90-100	70-95	15-40	NP-15
	38-50	Silty clay loam, loam, clay loam, silt loam.	CL, CL-ML, ML	A-4, A-6	---	---	---	95-100	90-100	70-90	15-40	NP-15
	50-80	Stratified silty clay loam to gravelly coarse sandy loam.	CL, ML, SC, SM	A-4, A-2, A-6	---	---	60-100	55-100	45-100	30-95	30-45	NP-22

Table 22.--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	
Ko:												
Kokomo----------	0-12	Silt loam--------	CL	A-6	0	0	100	98-100	85-100	60-90	25-35	10-20
	12-42	Silty clay loam, clay loam, silty clay.	CH, CL	A-6, A-7	0	0-1	95-100	95-100	95-100	75-95	35-55	15-30
	42-64	Loam, clay loam--	CL	A-6	0-1	0-3	90-100	85-95	75-90	55-70	25-35	10-20
Kp:												
Kokomo----------	0-18	Silty clay loam--	CH, CL	A-6, A-7	0	0	100	98-100	85-95	75-85	35-55	15-30
	18-42	Silty clay loam, clay loam, silty clay.	CH, CL	A-6, A-7	0	0-1	95-100	95-100	95-100	75-95	35-55	15-30
	42-80	Loam, clay loam--	CL	A-6	0-1	0-3	90-100	85-95	75-90	55-70	25-35	10-20
LfC2:												
Latham----------	0-8	Silt loam--------	CL, ML, CL-ML	A-4, A-6	---	0-5	85-100	75-100	70-100	65-90	15-40	NP-15
	8-35	Silty clay, silty clay loam, channery silty clay.	CH, CL	A-7	---	0-10	85-100	70-95	65-95	60-90	45-65	25-40
	35-40	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
LfD2:												
Latham----------	0-4	Silt loam--------	CL, CL-ML, ML	A-4, A-6	---	0-5	85-100	75-100	70-100	65-90	15-40	NP-15
	4-31	Silty clay, silty clay loam, channery silty clay.	CH, CL	A-7	---	0-10	85-100	70-95	65-95	60-90	45-65	25-40
	31-35	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
LfE:												
Latham----------	0-5	Silt loam--------	CL, ML, CL-ML	A-4, A-6	---	0-5	85-100	75-100	70-100	65-90	15-40	NP-15
	5-38	Silty clay, silty clay loam, channery silty clay.	CH, CL	A-7	---	0-10	85-100	70-95	65-95	60-90	45-65	25-40
	38-40	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
LgD:												
Latham----------	0-8	Silt loam--------	CL-ML, CL, ML	A-4, A-6	---	0-5	85-100	75-100	70-100	65-90	15-40	NP-15
	8-34	Silty clay, silty clay loam, channery silty clay.	CH, CL	A-7	---	0-10	85-100	70-95	65-95	60-90	45-65	25-40
	34-40	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Wharton---------	0-5	Silt loam--------	CL-ML, ML	A-4	0-2	0-5	80-95	75-95	60-95	55-90	0-35	NP-10
	5-48	Silty clay loam, silt loam, channery silty clay loam, silty clay.	CL-ML, CL, GC, SC	A-4, A-6	0-5	0-10	55-95	50-95	45-95	40-90	25-40	4-15
	48-66	Channery silt loam, channery silty clay loam, very channery clay loam, silty clay, channery silty clay.	GC, CL, GM, ML	A-1-b, A-6, A-2, A-4	0-10	0-15	40-85	35-70	25-70	20-65	20-40	3-20
LrB:												
Libre----------	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	---	---	---	---	90-100	70-100	20-35	7-15
	10-33	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	---	---	---	---	95-100	85-95	25-40	7-15
	33-53	Loam, silt loam, silty clay loam, clay loam.	CL, CL-ML	A-4, A-6	---	---	95-100	95-100	90-100	80-100	25-40	7-15
	53-80	Loam, clay loam, gravelly clay loam.	CL, CL-ML	A-6, A-4	---	---	90-100	85-95	55-95	40-80	25-35	7-15
LrC2:												
Libre----------	0-6	Silt loam--------	CL, CL-ML	A-4, A-6	---	---	---	---	90-100	70-100	20-35	7-15
	6-26	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6	---	---	---	---	95-100	85-95	25-40	7-15
	26-56	Loam, silt loam, silty clay loam.	CL, CL-ML	A-6, A-4	---	---	95-100	95-100	90-100	80-100	25-40	7-15
	56-80	Loam, clay loam, gravelly clay loam.	CL, CL-ML	A-6, A-4	---	---	90-100	85-95	55-95	40-80	25-35	7-15

Table 22.--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	
MaB:												
Markland--------	0-11	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	11-37	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-62	20-36
	37-80	Silty clay, silty clay loam, silt loam.	CL, CH, CL-ML	A-6, A-4, A-7-6	0	0	100	100	95-100	90-100	15-55	4-30
MbC2:												
Markland--------	0-6	Silty clay loam--	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	15-30
	6-36	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-62	20-36
	36-80	Silty clay, silty clay loam, silt loam.	CH, CL-ML, CL	A-4, A-7-6, A-6	0	0	100	100	95-100	90-100	15-55	4-30
MbD2:												
Markland--------	0-6	Silty clay loam--	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	15-30
	6-28	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-62	20-36
	28-80	Silty clay, silty clay loam, silt loam.	CL, CH, CL-ML	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	15-55	4-30
MbE2:												
Markland--------	0-3	Silty clay loam--	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	15-30
	3-22	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-62	20-36
	22-80	Silty clay, silty clay loam, silt loam.	CH, CL, CL-ML	A-4, A-6, A-7-6	0	0	100	100	95-100	90-100	15-55	4-30
McA:												
Martinsville----	0-11	Loam----------	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-95	22-33	4-12
	11-26	Silty clay loam, silt loam, clay loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	85-95	20-35	5-20
	26-55	Clay loam, sandy clay loam, fine sandy loam.	CL-ML, SC, CL, SC-SM	A-4, A-6	0	0	100	90-100	65-90	40-90	20-35	5-20
	55-80	Stratified loamy sand to loam, silt loam, fine sandy loam.	ML, CL, SC, SM	A-2, A-4, A-6	0	0	100	90-100	60-80	30-60	30-40	5-15

Table 22.--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	
MdA:												
McGary----------	0-6	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	6-42	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-60	20-34
	42-80	Silty clay, silty clay loam, clay.	CH, CL	A-6, A-7-6	0	0	100	100	95-100	90-100	38-60	15-34
MdB:												
McGary----------	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-40	5-20
	10-42	Silty clay, silty clay loam.	CH, CL	A-7-6	0	0	100	100	95-100	90-100	45-60	20-34
	42-80	Silty clay, silty clay loam, clay.	CH, CL	A-6, A-7-6	0	0	100	100	95-100	90-100	38-60	15-34
MeC2:												
Mentor----------	0-6	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	6-40	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	40-80	Stratified sandy loam to loam to clay loam to silty clay loam.	ML, CL, SC, SM	A-4, A-6	0	0	90-100	90-100	80-95	45-85	20-40	2-15
MeD2:												
Mentor----------	0-3	Silt loam--------	CL, ML, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	3-40	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	40-80	Stratified sandy loam to loam to clay loam to silty clay loam.	ML, CL, SC, SM	A-4, A-6	0	0	90-100	90-100	80-95	45-85	20-40	2-15
MfA:												
Mentor----------	0-12	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	12-53	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	53-80	Stratified sandy loam to silty clay loam.	ML, CL, SC, SM	A-4, A-6	0	0	90-100	90-100	80-95	45-85	20-40	2-15

Table 22.--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	
MgA:												
Mentor----------	0-10	Silt loam--------	CL, ML, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	10-53	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	53-59	Stratified gravelly sandy clay loam to silty clay loam, silt loam, clay loam.	CL, SM, ML, SC	A-2, A-1, A-4, A-6	---	0-5	70-100	55-90	45-85	20-70	0-30	NP-15
	59-80	Gravelly sandy loam, stratified gravelly loam to gravelly clay loam.	GM, SM	A-1, A-2	---	0-10	60-90	45-60	25-45	15-30	0-14	NP
MgB:												
Mentor----------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-90	20-35	3-14
	10-42	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-95	20-40	4-18
	42-57	Stratified gravelly sandy clay loam to silty clay loam, silt loam, clay loam.	CL, ML, SM, SC	A-2, A-4, A-1, A-6	---	0-5	70-100	55-90	45-85	20-70	0-30	NP-15
	57-80	Gravelly sandy loam, stratified gravelly loam to gravelly clay loam.	GM, SM	A-1, A-2	---	0-10	60-90	45-60	25-45	15-30	0-14	NP
MhB:												
Miamian---------	0-8	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	8-25	Silt loam, clay loam, silty clay loam.	CL	A-6, A-7	0	0	85-100	80-100	75-95	70-85	30-50	10-25
	25-80	Loam, silt loam, clay loam.	CL, ML, CL-ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
MhB2:												
Miamian---------	0-5	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	5-25	Clay loam, clay, silty clay.	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	25-80	Loam, silt loam, clay loam.	CL-ML, CL, ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13

Table 22.--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	
MhC2:												
Miamian---------	0-6	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	6-30	Clay loam, clay, silty clay.	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	30-80	Loam, silt loam, clay loam.	CL-ML, CL, ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
MhD2:												
Miamian---------	0-4	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	4-22	Clay loam, clay--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	22-80	Loam, silt loam, clay loam.	CL, CL-ML, ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
MhE:												
Miamian---------	0-3	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	3-7	Silt loam, clay loam, silty clay loam.	CL	A-6, A-7	0	0	85-100	80-100	75-95	70-85	30-50	10-25
	7-37	Clay loam, clay--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	37-80	Loam, silt loam, clay loam.	CL-ML, CL, ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
MmC2:												
Miamian---------	0-9	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	9-23	Clay loam, clay--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	30-50	15-30
	23-31	Clay loam, clay--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	30-50	15-30
	31-56	Stony clay loam, gravelly loam, gravelly clay loam.	CL	A-6, A-7	---	15-30	85-95	75-90	70-85	55-75	30-50	15-35
	56-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
MmD2:												
Miamian---------	0-3	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	3-23	Clay loam, clay--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	30-50	15-30
	23-26	Clay loam, clay--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	30-50	15-30
	26-50	Gravelly loam, stony clay loam, gravelly clay loam.	CL	A-6, A-7	---	15-30	85-95	75-90	70-85	55-75	30-50	15-35
	50-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
MnB:												
Miamian---------	0-9	Silt loam--------	CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	70-95	25-40	4-12
	9-13	Silt loam, clay loam, silty clay loam.	CL	A-6, A-7	0	0	85-100	80-100	75-95	70-85	30-50	10-25
	13-32	Clay loam, clay--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	32-80	Loam, silt loam, clay loam.	CL, CL-ML, ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
Lewisburg-------	0-7	Silt loam--------	CL-ML, CL, ML	A-4, A-6	---	0-2	95-100	90-100	85-100	75-90	24-40	4-14
	7-18	Clay loam, clay, silty clay loam.	CH, CL	A-6, A-7	---	0-2	90-100	85-95	80-95	65-85	30-55	10-35
	18-80	Loam, silt loam--	CL, CL-ML	A-4, A-6	---	0-5	85-100	80-95	65-90	50-75	20-35	5-20
MoB:												
Milton----------	0-7	Silt loam--------	CL, ML	A-4, A-6	0	0	95-100	90-100	85-100	70-95	26-36	4-12
	7-17	Silty clay loam, clay loam, clay.	CL	A-6, A-7	0	0	95-100	80-100	75-100	70-95	32-48	12-28
	17-25	Clay, sandy clay loam, clay loam, very channery sandy clay loam, channery sandy clay loam.	CH, CL	A-6, A-7	---	0-5	95-100	80-100	70-95	50-90	32-55	14-33
	25-30	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
MoC2:												
Milton----------	0-5	Silt loam--------	CL, ML	A-4, A-6	0	0	95-100	90-100	85-100	70-95	26-36	4-12
	5-12	Silty clay loam, clay loam, clay.	CL	A-6, A-7	0	0	95-100	80-100	75-100	70-95	32-48	12-28
	12-22	Clay, sandy clay loam, very channery clay loam, channery sandy clay loam.	CH, CL	A-6, A-7	---	0-5	95-100	80-100	70-95	50-90	32-55	14-33
	22-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
MoE2:												
Milton----------	0-4	Silt loam--------	CL, ML	A-4, A-6	0	0	95-100	90-100	85-100	70-95	26-36	4-12
	4-12	Silty clay loam, clay loam, clay.	CL	A-6, A-7	0	0	95-100	80-100	75-100	70-95	32-48	12-28
	12-22	Clay, sandy clay loam, channery sandy clay loam, very channery clay loam.	CH, CL	A-6, A-7	---	0-5	95-100	80-100	70-95	50-90	32-55	14-33
	22-25	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
NeC2:												
Negley----------	0-6	Loam----------	CL-ML, CL, ML	A-4, A-6	0	0	85-100	75-100	70-90	55-85	15-40	NP-15
	6-15	Loam, gravelly clay loam, gravelly sandy loam.	CL-ML, ML, SM	A-4, A-2, A-6, A-7	---	0-5	70-95	50-90	35-80	20-60	25-45	5-17
	15-80	Gravelly sandy clay loam, sandy clay loam, sandy clay, clay loam, gravelly clay loam.	CL-ML, CL, SC, SC-SM	A-4, A-6, A-2, A-7	---	0-5	70-95	50-90	40-80	25-55	20-50	5-24
NeD2:												
Negley----------	0-8	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0	85-100	75-100	70-90	55-85	15-40	NP-15
	8-18	Loam, gravelly clay loam, gravelly sandy loam, clay loam.	CL, SM, ML	A-2, A-4, A-7, A-6	---	0-5	70-95	50-90	35-80	20-60	30-45	NP-22
	18-80	Gravelly sandy clay loam, sandy clay loam, sandy clay, clay loam, gravelly clay loam.	CL-ML, SC, CL, SC-SM	A-4, A-6, A-2, A-7	---	0-5	70-95	50-90	40-80	25-55	20-50	5-24

Table 22.--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	
NeE2:												
Negley----------	0-7	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0	85-100	75-100	70-90	55-85	15-40	NP-15
	7-38	Loam, gravelly clay loam, gravelly sandy loam, clay loam.	CL, SM, ML	A-2, A-4, A-7, A-6	---	0-5	70-95	50-90	35-80	20-60	30-45	NP-22
	38-80	Gravelly sandy clay loam, sandy clay loam, sandy clay, clay loam, gravelly clay loam.	SC, SC-SM	A-4, A-2, A-6, A-7	---	0-5	70-95	50-90	40-80	25-50	20-50	5-24
NnA:												
Nineveh---------	0-15	Silt loam--------	CL	A-6	0	0	95-100	75-100	75-95	50-75	25-35	10-15
	15-22	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6, A-7	0	0	95-100	75-100	75-100	65-80	35-45	15-25
	22-33	Gravelly clay loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	0-5	85-95	75-90	60-80	40-60	30-45	15-25
	33-37	Gravelly sandy clay loam, gravelly loam, very gravelly clay loam, very gravelly loam.	CL, GC, SC	A-2, A-6, A-7	0	0-5	65-85	45-75	35-70	15-60	35-50	15-25
	37-80	Stratified very gravelly coarse sand to sand.	GP, GP-GM	A-1	0	0-5	30-70	20-55	5-20	0-10	0	NP

Table 22.--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	
NnB:												
Nineveh---------	0-14	Silt loam--------	CL	A-6	0	0	95-100	75-100	75-95	50-75	25-35	10-15
	14-22	Clay loam, silty clay loam, gravelly clay loam.	CL	A-6, A-7	0	0	95-100	75-100	75-100	65-80	35-45	15-25
	22-32	Gravelly clay loam, clay loam, sandy clay loam.	CL, SC	A-6, A-7	0	0-5	85-95	75-90	60-80	40-60	30-45	15-25
	32-35	Gravelly sandy clay loam, gravelly loam, very gravelly clay loam, very gravelly loam.	CL, SC, GC	A-2, A-6, A-7	0	0-5	65-85	45-75	35-70	15-60	35-50	15-25
	35-80	Stratified very gravelly coarse sand to sand.	GP, GP-GM	A-1	0	0-5	30-70	20-55	5-20	0-10	0	NP
ObA:												
Ockley----------	0-11	Loam----------	CL, ML, CL-ML	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	11-20	Silt loam, clay loam, sandy clay loam, loam.	CL-ML, CL, SC, SC-SM	A-4, A-2, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	20-50	Sandy clay loam, gravelly sandy loam, clay loam, gravelly clay loam.	CL, SM, ML, SC	A-4, A-6, A-2, A-7-6	0	0-2	70-85	45-85	25-75	15-60	10-50	NP-35
	50-80	Gravelly sandy clay loam, very gravelly coarse sand, stratified gravelly sand to very gravelly sand.	GP, SW-SM, SP-SM, GM, GW-GM, SW	A-1	0-2	1-10	30-70	20-55	10-30	2-15	0	NP

Table 22.--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	
ObB:												
Ockley----------	0-10	Loam----------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	10-19	Silt loam, clay loam, sandy clay loam, loam.	CL-ML, CL, SC, SC-SM	A-2, A-7-6, A-4, A-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	19-55	Sandy clay loam, gravelly sandy loam, clay loam, gravelly clay loam.	ML, CL, SC, SM	A-4, A-6, A-2, A-7-6	0	0-2	70-85	45-85	25-75	15-60	10-50	NP-35
	55-80	Gravelly sandy clay loam, very gravelly coarse sand, stratified gravelly loamy sand to gravelly sandy loam.	SP-SM, GM, GW-GM, SW, GP, SW-SM	A-1	0-2	1-10	30-70	20-55	10-30	2-15	0	NP
OmB:												
Omulga----------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	15-40	NP-15
	7-28	Silty clay loam, silt loam.	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	65-100	15-40	NP-15
	28-60	Silty clay loam, silt loam, clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	75-95	60-90	15-40	NP-15
	60-80	Silty clay loam, silt loam.	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	75-95	70-90	15-40	NP-15
OmC2:												
Omulga----------	0-5	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	65-90	15-40	NP-15
	5-24	Silty clay loam, silt loam.	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-100	65-100	15-40	NP-15
	24-40	Silty clay loam, silt loam, clay loam.	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	75-95	60-90	15-40	NP-15
	40-80	Silty clay loam, silt loam.	CL, ML, CL-ML	A-4, A-6	0	0	85-100	80-100	75-95	70-90	15-40	NP-15
Or:												
Orrville--------	0-8	Silt loam--------	CL, CL-ML, ML	A-4	0	0	100	90-100	85-100	60-80	20-35	3-10
	8-35	Silt loam, loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6	---	0-2	95-100	75-100	70-95	50-90	20-40	2-16
	35-80	Gravelly loamy sand, clay loam, sandy clay loam, gravelly sandy clay loam, loam.	CL, ML, SM, SC	A-2, A-1, A-4	---	0-2	95-100	65-100	40-85	15-75	15-35	NP-10

Table 22.--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	
OwB:												
Otwell----------	0-7	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	7-27	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	70-95	25-40	5-20
	27-50	Silty clay loam, loam, silt loam.	CL	A-6, A-7	0	0	95-100	95-100	85-100	65-90	35-50	20-30
	50-80	Stratified loam to silty clay, clay loam.	CL	A-6, A-7	0	0	95-100	90-100	85-100	65-95	35-50	15-25
Pc:												
Patton----------	0-10	Silty clay loam--	CL	A-6	0	0	100	100	95-100	75-100	30-40	10-20
	10-47	Silty clay loam--	CL	A-6, A-7	0	0	100	100	95-100	80-100	30-45	10-25
	47-80	Stratified fine sand to clay loam.	CL, ML, SM, SC	A-2-6, A-4, A-2-4, A-6	0	0	100	95-100	60-100	20-80	0-35	NP-15
Pg:												
Peoga----------	0-9	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-90	22-38	3-18
	9-65	Silt loam, silty clay loam.	CL	A-4, A-7-6, A-6	0	0	100	100	90-100	75-98	24-42	7-22
	65-80	Silt loam, silty clay loam, loam, clay loam.	ML, CL, CL-ML	A-6, A-7	0	0	98-100	95-100	80-100	55-95	15-42	NP-15
PkA:												
Pike----------	0-8	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	80-95	15-40	NP-15
	8-46	Silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	95-100	95-100	90-100	80-100	17-26	4-12
	46-80	Silty clay loam, silt loam, gravelly clay loam, loam.	CL-ML, CL	A-4, A-6	0	0	80-90	70-90	60-90	30-80	17-26	4-12
PkB:												
Pike----------	0-10	Silt loam--------	CL-ML, ML, CL	A-4, A-6	0	0	100	100	90-100	80-95	15-40	NP-15
	10-44	Silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	95-100	95-100	90-100	80-100	17-26	4-12
	44-80	Silty clay loam, silt loam, sandy clay loam, clay loam, loam.	ML, CL, SC	A-4, A-6, A-2	0	0	90-100	80-95	55-90	30-60	30-45	NP-22
Pn.												
Pits, gravel												

Table 22.--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	
Po. Pits, quarry												
Pp:												
Pope	0-9	Silt loam	CL, SM, CL-ML, ML	A-4	0	0	85-100	75-100	70-100	45-90	0-30	NP-10
	9-40	Fine sandy loam, sandy loam, loam, silt loam.	CL-ML, ML, SM, SC-SM	A-2, A-4	0	0	95-100	80-100	51-95	25-75	0-30	NP-7
	40-60	Sandy loam, loamy sand.	ML, GM, SC-SM, SM	A-1, A-4, A-2	---	0-20	45-100	35-100	30-95	15-70	0-30	NP-7
PtB:												
Princeton	0-10	Sandy loam	CL, ML, SM, SC	A-2-4, A-4	0	0	100	100	60-85	30-55	0-25	NP-10
	10-19	Sandy clay loam, fine sandy loam, loam.	CL, SC	A-6	0	0	100	100	70-90	35-70	25-35	10-15
	19-80	Stratified loamy fine sand to loam, sandy clay loam.	CL, SC-SM, CL-ML, SC	A-2-4, A-6, A-2-6, A-4	0	0	100	100	60-90	30-70	15-25	5-15
PtC:												
Princeton	0-6	Sandy loam	ML, SC, CL, SM	A-2-4, A-4	0	0	100	100	60-85	30-55	0-25	NP-10
	6-17	Sandy clay loam, fine sandy loam, loam.	CL, SC	A-6	0	0	100	100	70-90	35-70	25-35	10-15
	17-80	Stratified loamy fine sand to loam, sandy loam.	CL, SC-SM, CL-ML, SC	A-2-6, A-4, A-2-4, A-6	0	0	100	100	60-90	30-70	15-25	5-15
PtD:												
Princeton	0-10	Sandy loam	ML, SC, CL, SM	A-2-4, A-4	0	0	100	100	60-85	30-55	0-25	NP-10
	10-30	Sandy clay loam, fine sandy loam, loam.	CL, SC	A-6	0	0	100	100	70-90	35-70	25-35	10-15
	30-80	Stratified loamy fine sand to loam, loamy fine sand, sandy loam.	CL-ML, CL, SC, SC-SM	A-2-6, A-4, A-2-4, A-6	0	0	100	100	60-90	30-70	15-25	5-15

Table 22.--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	
RbA:												
Rainsboro-------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-90	25-40	5-12
	10-36	Silt loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6, A-7	0	0	100	95-100	90-100	75-95	25-45	5-17
	36-65	Sandy loam, loam, gravelly clay loam, clay loam.	CL, CL-ML, SC-SM, SC	A-2, A-4, A-6	---	0-5	75-95	50-95	40-85	30-70	20-40	5-15
	65-80	Stratified gravelly sandy loam to clay loam, fine sandy loam, loam, clay loam.	CL-ML, SC, CL, SC-SM	A-2, A-6, A-4	---	0-5	75-95	50-90	40-80	30-65	20-40	5-15
RbB:												
Rainsboro-------	0-8	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-90	25-40	5-12
	8-34	Silt loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6, A-7	0	0	100	95-100	90-100	75-95	25-45	5-17
	34-60	Sandy loam, loam, gravelly clay loam, clay loam.	CL-ML, CL, SC, SC-SM	A-2, A-6, A-4	---	0-5	75-95	50-95	40-85	30-70	20-40	5-15
	60-80	Stratified gravelly sandy loam to clay loam, loam, clay loam.	CL, SC-SM, CL-ML, SC	A-4, A-2, A-6	---	0-5	75-95	50-90	40-80	30-65	20-40	5-15
RbC2:												
Rainsboro-------	0-6	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-90	25-40	5-12
	6-28	Silt loam, silty clay loam.	CL, CL-ML, ML	A-6, A-4, A-7	0	0	100	95-100	90-100	75-95	25-45	5-17
	28-60	Silt loam, silty clay loam.	CL, ML, CL-ML	A-4, A-6, A-7	0	0	100	95-100	90-100	75-95	25-45	5-17
	60-80	Stratified gravelly sandy loam to clay loam, loam, clay loam.	CL-ML, SC, CL, SC-SM	A-2, A-6, A-4	---	0-5	75-95	50-90	40-80	30-65	20-40	5-15

Table 22.--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	
RcF:												
Rigley----------	0-7	Sandy loam-------	ML, CL-ML, SC-SM, SM	A-2, A-4	---	0-10	80-95	75-90	55-80	25-65	0-30	NP-7
	7-44	Gravelly sandy loam, gravelly loam, sandy loam, channery sandy loam, channery loam.	GC-GM, SM, GM, ML	A-1, A-4, A-2	---	0-10	65-95	60-90	40-75	20-60	0-30	NP-7
	44-60	Gravelly sandy loam, gravelly loam, gravelly clay loam, extremely channery sandy loam, channery loam, channery loam, loamy sand.	GM, GC, SC, SM	A-2, A-1, A-4, A-6	---	0-20	55-80	45-70	30-60	15-50	0-35	NP-15
Rock outcrop.												
RdD2:												
Rodman----------	0-7	Gravelly loam----	ML, CL, SC, SM	A-4	0	0-2	70-85	65-75	60-75	36-65	0-30	3-9
	7-15	Gravelly loam, sandy loam, loam, very gravelly loamy sand.	CL, SM, ML, SC	A-2, A-1, A-4	0	0-2	70-85	60-85	40-75	20-55	0-30	NP-10
	15-80	Stratified extremely gravelly coarse sand to sand, extremely gravelly loamy sand.	GP-GM, GP, SP, SP-SM	A-1	0-1	1-5	30-70	20-55	7-20	2-10	0	NP

Table 22.--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	
RdE2:												
Rodman----------	0-2	Gravelly loam----	ML, CL, SC, SM	A-4	0	0-2	70-85	65-75	60-75	36-65	0-30	3-9
	2-15	Gravelly loam, sandy loam, loam, very gravelly loamy sand, gravelly sandy loam.	CL, SM, ML, SC	A-1, A-4, A-2	0	0-2	70-85	60-85	40-75	20-55	0-30	NP-10
	15-80	Stratified extremely gravelly coarse sand to sand, extremely gravelly loamy sand.	GP, SP-SM, GP-GM, SP	A-1	0-1	1-5	30-70	20-55	7-20	2-10	0	NP
Rn:												
Ross----------	0-8	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	90-100	90-100	80-100	65-95	20-35	NP-12
	8-29	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	90-100	90-100	80-100	65-95	20-35	NP-12
	29-40	Loam, silt loam, silty clay loam.	CL, ML, CL-ML	A-4, A-7, A-6	0	0	90-100	85-100	70-100	55-95	22-45	3-20
	40-80	Stratified gravelly sandy loam to silt loam, stratified loamy sand to coarse sandy loam.	GM, CL, ML, SM	A-4, A-2, A-6	---	0-5	65-100	45-100	30-100	25-80	0-30	NP-12
Ro:												
Rossburg--------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	60-90	15-40	NP-15
	10-17	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	80-100	60-90	15-40	NP-15
	17-47	Silt loam, loam, fine sandy loam, gravelly loam.	CL, ML, CL-ML	A-4, A-6	0	0	90-100	85-100	70-95	50-80	15-45	NP-15
	47-80	Stratified gravelly sandy loam to silt loam, sandy loam, gravelly sandy loam.	CL, SM, ML, SC	A-2-4, A-4	0	0	80-100	70-100	45-90	25-70	0-25	NP-10

Table 22.--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	
RpA:												
Rossmoyne-------	0-9	Silt loam--------	ML	A-4	0	0	100	100	95-100	90-100	30-40	4-10
	9-26	Silty clay loam, silt loam, clay loam.	CL, ML	A-4, A-7, A-6	0	0	100	95-100	85-100	80-95	30-48	8-20
	26-60	Clay loam, loam, silty clay loam, silt loam.	CL	A-4, A-6	0	0	90-100	85-95	80-90	70-85	25-40	9-19
	60-80	Clay loam, loam, clay, silty clay loam.	CL	A-4, A-6, A-7	0	0	80-95	70-90	65-85	60-80	25-42	8-20
RpB:												
Rossmoyne-------	0-11	Silt loam--------	ML	A-4	0	0	100	100	95-100	90-100	30-40	4-10
	11-29	Silty clay loam, silt loam, clay loam.	CL, ML	A-4, A-6, A-7	0	0	100	95-100	85-100	80-95	30-48	8-20
	29-65	Clay loam, loam, silty clay loam, silt loam.	CL	A-4, A-6	0	0	90-100	85-95	80-90	70-85	25-40	9-19
	65-80	Clay loam, loam, clay, silty clay loam.	CL	A-4, A-7, A-6	0	0	80-95	70-90	65-85	60-80	25-42	8-20
RpC2:												
Rossmoyne-------	0-7	Silt loam--------	ML	A-4	0	0	100	100	95-100	90-100	30-40	4-10
	7-28	Silty clay loam, silt loam, clay loam.	CL, ML	A-6, A-4, A-7	0	0	100	95-100	85-100	80-95	30-48	8-20
	28-60	Clay loam, loam, silty clay loam, silt loam.	CL	A-4, A-6	0	0	90-100	85-95	80-90	70-85	25-40	9-19
	60-80	Clay loam, loam, clay, silty clay loam.	CL	A-6, A-4, A-7	0	0	80-95	70-90	65-85	60-80	25-42	8-20
RsB:												
Rossmoyne-------	0-5	Silt loam--------	ML	A-4	0	0	100	100	95-100	90-100	30-40	4-10
	5-23	Silty clay loam, silt loam, clay loam.	CL, ML	A-6, A-4, A-7	0	0	100	95-100	85-100	80-95	30-48	8-20
	23-60	Clay loam, loam, silty clay loam, silt loam.	CL	A-4, A-6	0	0	90-100	85-95	80-90	70-85	25-40	9-19
	60-80	Clay loam, loam, clay, silty clay loam.	CL	A-6, A-4, A-7	0	0	80-95	70-90	65-85	60-80	25-42	8-20

Table 22.--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	
RsB:												
Cana----------	0-5	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	15-40	NP-15
	5-14	Silt loam, silty clay loam.	CL-ML, CL, ML	A-6, A-4	0	0	95-100	95-100	85-100	65-95	15-40	NP-15
	14-42	Clay loam, silty clay loam, silty clay.	CL	A-6, A-7	---	0-5	85-100	85-100	70-100	55-95	30-45	15-25
	42-51	Clay, channery silty clay, very channery silty clay loam.	CH, CL	A-7	---	0-10	70-95	60-95	55-90	50-85	40-55	25-35
	51-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
RsC2:												
Rossmoyne-------	0-7	Silt loam--------	ML	A-4	0	0	100	100	95-100	90-100	30-40	4-10
	7-22	Silty clay loam, silt loam, clay loam.	CL, ML	A-4, A-6, A-7	0	0	100	95-100	85-100	80-95	30-48	8-20
	22-60	Clay loam, loam, silty clay loam, silt loam.	CL	A-4, A-6	0	0	90-100	85-95	80-90	70-85	25-40	9-19
	60-80	Clay loam, loam, silty clay loam.	CL	A-4, A-6	0	0	90-100	85-95	80-90	70-85	25-40	9-19
Cana----------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	65-90	15-40	NP-15
	7-16	Silt loam, silty clay loam.	CL, CL-ML, ML	A-6, A-4	0	0	95-100	95-100	85-100	65-95	15-40	NP-15
	16-42	Clay loam, silty clay loam, silty clay.	CL	A-6, A-7	---	0-5	85-100	85-100	70-100	55-95	30-45	15-25
	42-48	Clay, channery silty clay, very channery silty clay loam.	CH, CL	A-7	---	0-10	70-95	60-95	55-90	50-85	40-55	25-35
	48-60	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
SfD:												
Shelocta--------	0-4	Silt loam--------	CL-ML, ML	A-4	0-2	0-5	80-95	75-95	60-95	55-90	0-35	NP-10
	4-50	Silty clay loam, silt loam, channery silty clay loam.	CL-ML, CL, GC, SC	A-4, A-6	0-5	0-10	55-95	50-95	45-95	40-90	25-40	4-15
	50-80	Channery silt loam, channery silty clay loam, very channery clay loam.	CL, ML, GC, GM	A-2, A-1-b, A-4, A-6	0-10	0-15	40-85	35-70	25-70	20-65	20-40	3-20
SgF:												
Shelocta--------	0-10	Silt loam--------	CL-ML, ML	A-4	0-2	0-5	80-95	75-95	60-95	55-90	0-35	NP-10
	10-55	Silty clay loam, silt loam, channery silty clay loam, very channery silt loam.	CL-ML, CL, GC, SC	A-4, A-6	0-5	0-10	55-95	50-95	45-95	40-90	25-40	4-15
	55-80	Channery silt loam, channery silty clay loam, very channery clay loam, extremely channery silt loam.	CL, ML, GC, GM	A-1-b, A-6, A-2, A-4	0-10	0-15	40-85	35-70	25-70	20-65	20-40	3-20
Brownsville-----	0-5	Channery silt loam.	GC-GM, CL-ML, GM, ML	A-4	---	0-15	50-80	45-70	40-70	35-60	25-35	5-10
	5-32	Channery silt loam, extremely channery loam, very flaggy silt loam, extremely channery silt loam.	GC-GM, CL-ML, GM, ML	A-1, A-2, A-4	---	5-40	35-80	30-70	25-70	20-60	25-35	5-10
	32-42	Channery silt loam, extremely channery loam, very flaggy silt loam, extremely channery silt loam.	GM, SM	A-1, A-4, A-2	---	15-60	25-65	20-55	15-50	10-45	20-35	2-10
	42-45	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
ShE:												
Shelocta--------	0-7	Silt loam--------	CL-ML, ML	A-4	0-2	0-5	80-95	75-95	60-95	55-90	0-35	NP-10
	7-55	Silty clay loam, silt loam, channery silty clay loam, channery silt loam.	CL-ML, CL, GC, SC	A-4, A-6	0-5	0-10	55-95	50-95	45-95	40-90	25-40	4-15
	55-80	Channery silt loam, channery silty clay loam, very channery clay loam, very channery silt loam.	CL, ML, GC, GM	A-2, A-1-b, A-4, A-6	0-10	0-15	40-85	35-70	25-70	20-65	20-40	3-20
Cruze----------	0-6	Silt loam--------	CL, CL-ML, ML	A-4, A-6	---	0-5	85-100	75-100	70-95	60-80	15-40	NP-15
	6-28	Silt loam, silty clay loam, channery silty clay loam.	CL, GC, SC	A-6, A-7	---	0-10	70-100	55-100	55-95	45-85	30-50	10-25
	28-37	Silty clay, silty clay loam, channery silty clay loam.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-65	15-35
	37-48	Silty clay, channery silty clay, silty clay loam.	CH, CL	A-7	---	0-20	70-100	55-100	55-95	50-90	40-70	15-40
	48-53	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Weikert---------	0-6	Silt loam--------	CL, CL-ML	A-4, A-6	0	0-5	85-95	85-95	75-95	60-85	20-30	5-11
	6-12	Channery loam, very channery silt loam, very 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
	12-15	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 22.--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	
SkE:												
Shelocta--------	0-5	Silt loam--------	CL-ML, ML	A-4	0-2	0-5	80-95	75-95	60-95	55-90	0-35	NP-10
	5-48	Silty clay loam, silt loam, channery silty clay loam, channery silt loam, very channery silt loam.	CL, SC, CL-ML, GC	A-4, A-6	0-5	0-10	55-95	50-95	45-95	40-90	25-40	4-15
	48-62	Channery silt loam, channery silty clay loam, very channery clay loam, very channery silt loam.	GC, CL, GM, ML	A-2, A-4, A-1-b, A-6	0-10	0-15	40-85	35-70	25-70	20-65	20-40	3-20
Rigley----------	0-6	Gravelly fine sandy loam.	ML, GM, SC-SM, SM	A-2, A-4	---	0-10	60-85	60-70	50-60	25-55	0-30	NP-7
	6-50	Gravelly sandy loam, gravelly loam, sandy loam, loam.	GC-GM, SM, GM, ML	A-2, A-1, A-4	---	0-10	65-95	60-90	40-75	20-60	0-30	NP-7
	50-60	Gravelly sandy loam, gravelly loam, gravelly clay loam, sandy loam.	GC, GM, SM, SC	A-2, A-1, A-4, A-6	---	0-20	55-80	45-70	30-60	15-50	0-35	NP-15
Sp:												
Skidmore--------	0-10	Cobbly silt loam	GM, ML, SM	A-2, A-4, A-6, A-1	---	0-10	60-90	40-85	40-75	20-60	0-30	NP-15
	10-25	Gravelly loam, cobbly silt loam.	GC, SM, GM, SC	A-2, A-4	---	0-10	60-90	40-85	40-75	25-60	30-45	NP-22
	25-80	Gravelly fine sandy loam, very channery sandy loam, very gravelly loam, extremely gravelly clay loam.	GM, GP-GM	A-1	---	5-30	30-70	20-55	10-30	2-15	0	NP

Table 22.--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	
St:												
Sloan----------	0-16	Silty clay loam--	CL	A-6, A-7	0	0	100	95-100	90-100	80-95	35-45	12-20
	16-53	Silty clay loam, clay loam, silt loam, sandy clay loam.	CL, ML	A-4, A-6, A-7	0	0	100	90-100	85-100	75-95	30-45	8-18
	53-80	Stratified gravelly sandy loam to silty clay loam, gravelly sandy loam.	CL, ML	A-4, A-6	0	0	95-100	70-100	60-95	50-90	25-40	3-15
SuB:												
Spargus---------	0-10	Channery silt loam.	ML, SM, GM	A-4	---	0-10	55-90	50-80	40-70	20-65	0-35	NP-10
	10-45	Channery loam, channery silty clay loam, silty clay loam, channery silt loam.	CL, SC, CL-ML, GC	A-6, A-4	---	0-15	55-90	50-80	45-80	20-70	25-40	4-15
	45-80	Extremely channery silt loam, very channery silty clay loam, very channery silt loam, extremely channery silty clay loam, very channery loam, extremely channery loam.	GC, GM, ML, CL	A-4, A-6, A-1-b	---	0-25	40-70	35-60	25-60	20-60	20-40	3-20
Sv:												
Stonelick-------	0-8	Loam----------	CL-ML, CL, ML, SM	A-4	0	0	85-100	75-100	60-95	45-90	20-32	2-10
	8-80	Stratified loamy sand to loam to silt loam.	SM	A-2, A-1-b, A-3, A-4	0	0	85-100	70-95	40-60	5-40	0	NP
Sw:												
Stonelick-------	0-6	Fine sandy loam--	CL-ML, ML, SM, SC-SM	A-2, A-4	0	0	85-100	75-100	45-75	25-55	0-24	NP-6
	6-80	Stratified loamy sand to loam.	SM	A-1-b, A-2, A-4, A-3	0	0	85-100	75-100	40-60	5-40	0	NP

Table 22.--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	
TbA:												
Taggart---------	0-11	Silt loam--------	ML, CL, CL-ML	A-4	0	0	100	100	90-100	70-90	15-40	NP-15
	11-33	Silty clay loam, silt loam.	CL, ML, CL-ML	A-6	---	0	100	100	95-100	85-95	15-40	NP-15
	33-80	Loam, silty clay loam, clay loam.	CL-ML, CL	A-4, A-6	0	0-1	90-100	75-100	65-95	50-85	17-26	4-12
ThC3:												
Thrifton--------	0-6	Clay loam--------	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	6-14	Clay, clay loam--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	14-80	Loam, silt loam--	CL-ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
ThD3:												
Thrifton--------	0-8	Clay loam--------	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	8-14	Clay, clay loam--	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	14-80	Loam, silt loam--	CL-ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
ThE3:												
Thrifton--------	0-5	Clay loam--------	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	5-12	Clay loam, clay, silty clay loam.	CL	A-6, A-7	---	0-5	85-100	80-100	75-95	70-85	35-50	15-30
	12-80	Loam, silt loam--	CL-ML	A-4, A-6	---	0-5	75-95	75-90	65-85	50-75	20-35	3-13
TnA:												
Tilsit----------	0-9	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	60-100	20-35	4-15
	9-23	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-100	65-100	25-40	5-20
	23-43	Silt loam, silty clay loam, loam.	CL, CL-ML	A-4, A-6, A-7	0	0	90-100	85-100	75-100	65-100	25-45	5-25
	43-50	Silt loam, silty clay loam, silty clay.	CH, CL-ML, CL	A-4, A-6, A-7	---	0-30	70-100	65-85	60-85	55-80	25-60	5-35
	50-55	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
To:												
Tioga----------	0-8	Fine sandy loam--	ML, SM	A-4	0	0	100	95-100	65-95	40-85	0-15	NP-4
	8-32	Silt loam, loam, gravelly fine sandy loam, fine sandy loam.	GM, SM, ML	A-1, A-2, A-4	0	0	55-100	50-100	35-90	20-80	0-15	NP-2
	32-80	Loam, gravelly loam, very gravelly loamy sand, loamy coarse sand, fine sandy loam.	GW-GM, ML, GM, SM	A-1, A-4, A-2, A-3	---	0-10	35-100	30-100	15-90	5-80	0-15	NP-2

Table 22.--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	
TyA:												
Tyler----------	0-14	Silt loam--------	ML	A-4	0	0	100	95-100	90-100	75-95	30-40	4-10
	14-18	Silty clay loam, silt loam.	CL	A-4, A-6, A-7	0	0	100	95-100	90-100	80-100	25-45	8-20
	18-59	Silty clay loam, silt loam, clay loam.	CL	A-4, A-6, A-7	0	0	90-100	85-100	80-100	65-95	25-45	8-20
	59-80	Stratified gravelly loam to silt loam to silty clay loam.	CL, CL-ML, ML	A-4, A-6, A-7	0	0	85-100	75-100	75-100	55-90	20-45	4-18
Ud. Udorthents												
W. Water												
WcA:												
Warsaw----------	0-12	Loam----------	CL, CL-ML	A-4, A-6	0	0	85-100	85-100	70-100	50-90	20-30	4-12
	12-25	Sandy clay loam, loam, clay loam.	CL-ML, CL, SC, SC-SM	A-2-6, A-4, A-2-4, A-6	0	0-3	90-100	85-100	60-90	30-70	20-35	6-15
	25-28	Gravelly sandy clay loam, gravelly clay loam, gravelly sandy loam.	CL, SC-SM, GC, SC	A-2-4, A-6, A-2-6, A-4	0	0-5	70-90	60-85	55-70	30-60	20-35	6-15
	28-80	Stratified very gravelly coarse sand to sand.	GP, GP-GM, SP-SM, SP	A-1	0	1-5	30-70	22-55	7-20	2-10	0-20	NP

Table 22.--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	
Wk:												
Westland--------	0-13	Clay loam--------	CL	A-6	0	0	100	100	75-100	55-90	30-40	11-16
	13-39	Clay loam, loam, silty clay loam.	CL, SC	A-4, A-6	0	0	85-100	85-100	50-100	40-80	25-40	8-16
	39-57	Gravelly sandy clay loam, sandy loam, gravelly sandy loam, clay loam, loam, silty clay loam.	CL, SM, ML, SC	A-4, A-6	0	0-3	70-95	70-95	50-70	40-70	0-35	NP-15
	57-80	Gravelly coarse sand, gravelly loamy coarse sand, stratified gravelly coarse sand to coarse sand.	GP, GP-GM, SP-SM, SP	A-1	0	0-5	40-80	35-80	10-40	1-10	0-14	NP-3
WtB:												
Wyatt----------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-90	15-40	NP-15
	10-48	Silty clay, clay, silty clay loam.	CH, MH, CL	A-7	0	0	100	100	95-100	85-95	45-70	20-35
	48-80	Clay, silty clay, stratified silty clay loam to clay.	CH, CL, ML, MH	A-7	0	0	100	100	90-100	85-95	45-70	20-35
WyC2:												
Wyatt----------	0-8	Silty clay loam--	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	30-45	NP-22
	8-50	Silty clay, clay, silty clay loam.	CL, CH, MH	A-7	0	0	100	100	95-100	85-95	45-70	20-35
	50-80	Clay, silty clay, stratified silty clay loam to silty clay.	CL, CH, MH, ML	A-7	0	0	100	100	90-100	85-95	45-70	20-35

Table 22.--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	
WyD2:												
Wyatt----------	0-6	Silty clay loam--	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	30-45	NP-22
	6-35	Silty clay, clay, silty clay loam.	CL, CH, MH	A-7	0	0	100	100	95-100	85-95	45-70	20-35
	35-80	Clay, silty clay, stratified silty clay loam to silty clay.	CL, CH, MH, ML	A-7	0	0	100	100	90-100	85-95	45-70	20-35

Table 23.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
Aa:										
Adrian----------	0-22	---	0.30-0.55	0.20-6.00	0.35-0.45	---------	---	---	2	2
	22-80	2-10	1.40-1.75	6.00-20.00	0.03-0.08	Low------	.15	.15		
AcC2:										
Alexandria------	0-7	12-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.37	5	5
	7-38	35-42	1.45-1.70	0.20-0.60	0.11-0.17	Moderate	.37	.43		
	38-80	18-35	1.65-1.85	0.20-0.60	0.07-0.12	Low------	.37	.43		
AcD2:										
Alexandria------	0-6	12-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.37	5	5
	6-27	35-42	1.45-1.70	0.20-0.60	0.11-0.17	Moderate	.37	.43		
	27-80	18-35	1.65-1.85	0.20-0.60	0.07-0.12	Low------	.37	.43		
AcE2:										
Alexandria------	0-4	12-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.37	5	5
	4-37	35-42	1.45-1.70	0.20-0.60	0.11-0.17	Moderate	.37	.43		
	37-80	18-35	1.65-1.85	0.20-0.60	0.07-0.12	Low------	.37	.43		
AeE2:										
Alexandria------	0-9	12-27	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.37	5	5
	9-38	35-45	1.45-1.70	0.20-0.60	0.11-0.17	Moderate	.37	.43		
	38-80	18-35	1.65-1.85	0.20-0.60	0.07-0.12	Low------	.37	.43		
Fox----------	0-3	10-17	1.35-1.55	0.60-2.00	0.17-0.24	Low------	.37	.37	4	5
	3-12	18-35	1.55-1.65	0.60-2.00	0.10-0.22	Moderate	.43	.43		
	12-31	18-35	1.55-1.65	0.60-2.00	0.10-0.19	Moderate	.32	.32		
	31-80	0-2	1.30-1.70	6.00-60.00	0.02-0.07	Low------	.10	---		
AvA:										
Avonburg--------	0-9	10-18	1.30-1.60	0.60-2.00	0.22-0.24	Low------	.49	.49	4	5
	9-35	20-30	1.40-1.60	0.06-0.60	0.18-0.22	Moderate	.49	.49		
	35-58	22-25	1.60-1.70	0.00-0.06	0.09-0.11	Low------	.55	.55		
	58-80	27-40	1.50-1.70	0.06-0.20	0.05-0.06	Moderate	.37	.43		
AvB:										
Avonburg--------	0-8	10-18	1.30-1.60	0.60-2.00	0.22-0.24	Low------	.49	.49	4	5
	8-33	24-30	1.40-1.60	0.06-0.60	0.18-0.22	Moderate	.49	.49		
	33-58	22-35	1.60-1.70	0.00-0.06	0.09-0.11	Low------	.55	.55		
	58-80	27-40	1.50-1.70	0.06-0.20	0.05-0.06	Moderate	.37	.43		
BeD:										
Berks----------	0-8	5-23	1.20-1.50	0.60-6.00	0.08-0.12	Low------	.17	.32	3	6
	8-26	5-35	1.20-1.60	0.60-6.00	0.04-0.10	Low------	.17	.24		
	26-33	5-35	1.20-1.60	2.00-6.00	0.04-0.10	Low------	.17	.24		
	33-35	---	---	0.20-20.00	0.00-0.00	---------	---	---		
BeE:										
Berks----------	0-3	5-23	1.20-1.50	0.60-6.00	0.08-0.12	Low------	.17	.32	3	6
	3-24	5-35	1.20-1.60	0.60-6.00	0.04-0.10	Low------	.17	.24		
	24-32	5-35	1.20-1.60	2.00-6.00	0.04-0.10	Low------	.17	.24		
	32-35	---	---	0.20-20.00	0.00-0.00	---------	---	---		
BgC:										
Berks----------	0-5	5-23	1.20-1.50	0.60-6.00	0.08-0.12	Low------	.17	.32	3	6
	5-23	5-35	1.20-1.60	0.60-6.00	0.04-0.10	Low------	.17	.24		
	23-33	5-35	1.20-1.60	2.00-6.00	0.04-0.10	Low------	.17	.24		
	33-35	---	---	0.20-20.00	0.00-0.00	---------	---	---		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
BgC:										
Tarhollow-------	0-5	14-27	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.43	.43	4	6
	5-31	25-35	1.30-1.50	0.60-2.00	0.17-0.22	Moderate	.43	.43		
	31-44	35-60	1.40-1.60	0.06-0.20	0.15-0.18	High-----	.32	.37		
	44-55	32-55	1.40-1.60	0.06-0.20	0.10-0.15	High-----	.32	.43		
	55-60	---	---	0.00-0.20	---	---------	---	---		
CaB:										
Cana----------	0-8	12-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.37	4	6
	8-13	18-35	1.30-1.65	0.20-2.00	0.15-0.20	Moderate	.37	.37		
	13-40	26-45	1.40-1.65	0.20-2.00	0.13-0.18	Moderate	.37	.43		
	40-48	26-45	1.40-1.75	0.06-0.20	0.06-0.12	Moderate	.37	.55		
	48-60	---	---	0.00-0.20	---	---------	---	---		
CaC2:										
Cana----------	0-8	12-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.37	4	6
	8-13	18-35	1.30-1.65	0.20-2.00	0.15-0.20	Moderate	.37	.37		
	13-32	26-45	1.40-1.65	0.20-2.00	0.13-0.18	Moderate	.37	.43		
	32-42	26-45	1.40-1.75	0.06-0.20	0.06-0.12	Moderate	.37	.55		
	42-51	26-45	1.40-1.75	0.06-0.20	0.06-0.12	Moderate	.37	.55		
	51-60	---	---	0.00-0.20	0.00-0.20	---------	---	---		
CaD2:										
Cana----------	0-6	12-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.37	4	6
	6-13	18-35	1.30-1.65	0.20-2.00	0.15-0.20	Moderate	.37	.37		
	13-42	26-45	1.40-1.65	0.20-2.00	0.13-0.18	Moderate	.37	.43		
	42-51	26-45	1.40-1.75	0.06-0.20	0.06-0.12	Moderate	.37	.55		
	51-60	---	---	0.00-0.20	---	---------	---	---		
CaE2:										
Cana----------	0-6	12-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.37	4	6
	6-15	18-35	1.30-1.65	0.20-2.00	0.15-0.20	Moderate	.37	.37		
	15-35	26-45	1.40-1.65	0.20-2.00	0.13-0.18	Moderate	.37	.43		
	35-45	26-50	1.40-1.75	0.06-0.20	0.06-0.12	Moderate	.37	.55		
	45-60	---	---	0.00-0.20	---	---------	---	---		
Cd:										
Carlisle--------	0-56	---	0.13-0.23	0.20-6.00	0.35-0.45	---------	---	---	3	2
	56-80	1-10	1.40-1.75	6.00-20.12	0.03-0.08	Low------	.15	.15		
CeD:										
Casco----------	0-7	5-15	1.35-1.60	0.60-2.00	0.08-0.12	Low------	.17	.24	3	3
	7-14	10-35	1.55-1.65	0.60-2.00	0.09-0.19	Moderate	.32	.32		
	14-60	0-2	1.30-1.70	6.00-20.00	0.02-0.04	Low------	.10	.10		
Rodman----------	0-7	8-25	1.20-1.50	2.00-6.00	0.10-0.12	Low------	.20	.32	3	8
	7-14	5-25	1.10-1.50	2.00-6.00	0.09-0.12	Low------	.20	.32		
	14-60	0-10	1.60-1.70	20.00-99.90	0.02-0.04	Low------	.10	.37		
CgA:										
Celina----------	0-8	14-26	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	8-16	14-26	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37		
	16-33	10-50	1.45-1.60	0.20-0.60	0.16-0.19	Moderate	.37	.37		
	33-80	18-35	1.60-1.82	0.20-0.60	0.06-0.10	Low------	.37	.49		
CgB:										
Celina----------	0-9	14-26	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	9-15	14-26	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37		
	15-37	10-50	1.45-1.60	0.20-0.60	0.16-0.19	Moderate	.37	.37		
	37-80	8-35	1.60-1.82	0.20-0.60	0.06-0.10	Low------	.37	.49		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
CgB2:										
Celina----------	0-6	14-26	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	6-34	10-50	1.45-1.60	0.20-0.60	0.16-0.19	Moderate	.37	.37		
	34-80	18-35	1.60-1.82	0.20-0.60	0.06-0.10	Low------	.37	.49		
ChA:										
Chavies---------	0-10	7-18	1.20-1.40	2.00-6.00	0.11-0.18	Low------	.24	.24	5	3
	10-70	0-15	1.20-1.40	2.00-6.00	0.11-0.20	Low------	.24	.24		
	70-80	0-10	1.30-1.50	2.00-6.00	0.08-0.18	Low------	.24	.24		
CmA:										
Cidermill-------	0-8	15-25	1.30-1.45	0.60-2.00	0.18-0.22	Low------	.37	.37	4	5
	8-30	18-30	1.40-1.60	0.60-2.00	0.16-0.20	Low------	.37	.37		
	30-43	15-35	1.30-1.60	2.00-6.00	0.12-0.18	Low------	.24	.43		
	43-80	1-10	1.20-1.50	6.00-20.00	0.02-0.08	Low------	.10	.32		
CmB:										
Cidermill-------	0-10	15-25	1.30-1.45	0.60-2.00	0.18-0.22	Low------	.37	.37	4	5
	10-30	18-30	1.40-1.60	0.60-2.00	0.16-0.20	Low------	.37	.37		
	30-44	15-35	1.30-1.60	2.00-6.00	0.12-0.18	Low------	.24	.43		
	44-80	1-10	1.20-1.50	6.00-20.00	0.02-0.08	Low------	.10	.32		
Cp:										
Clifty----------	0-10	12-27	1.20-1.40	2.00-6.00	0.10-0.18	Low------	.32	.32	5	5
	10-28	10-35	1.20-1.45	2.00-6.00	0.08-0.16	Low------	.28	.32		
	28-80	5-19	1.20-1.45	2.00-20.00	0.05-0.12	Low------	.28	.32		
CrA:										
Coolville-------	0-18	17-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.43	.43	4	6
	18-33	30-40	1.40-1.60	0.60-2.00	0.16-0.19	Moderate	.43	.49		
	33-55	20-45	1.40-1.65	0.06-0.20	0.10-0.15	Moderate	.32	.37		
	55-60	---	---	0.00-0.20	---	---------	---	---		
CrB:										
Coolville-------	0-11	17-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.43	.43	4	6
	11-17	30-40	1.40-1.60	0.60-2.00	0.16-0.19	Moderate	.43	.49		
	17-49	20-45	1.40-1.65	0.06-0.20	0.10-0.15	Moderate	.32	.37		
	49-54	---	---	0.00-0.20	---	---------	---	---		
CrC2:										
Coolville-------	0-5	17-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.43	.43	4	6
	5-14	30-40	1.40-1.60	0.60-2.00	0.16-0.19	Moderate	.43	.49		
	14-32	20-45	1.40-1.65	0.06-0.20	0.10-0.15	Moderate	.32	.37		
	32-42	35-60	1.40-1.65	0.00-0.20	0.08-0.12	Moderate	.32	.43		
	42-50	---	---	0.00-0.20	---	---------	---	---		
CvA:										
Crosby----------	0-10	11-24	1.35-1.45	0.60-2.00	0.20-0.24	Low------	.43	.43	4	5
	10-36	35-45	1.50-1.60	0.06-0.20	0.15-0.20	Moderate	.43	.49		
	36-80	15-27	1.70-2.00	0.06-0.60	0.05-0.17	Low------	.43	.49		
CvB:										
Crosby----------	0-8	11-24	1.35-1.45	0.60-2.00	0.20-0.24	Low------	.43	.43	4	5
	8-25	35-45	1.50-1.60	0.06-0.20	0.15-0.20	Moderate	.43	.49		
	25-80	15-27	1.70-2.00	0.06-0.60	0.05-0.17	Low------	.43	.49		
CwC2:										
Cruze-----------	0-7	15-27	1.30-1.50	0.60-2.00	0.19-0.24	Low------	.43	.49	4	5
	7-23	20-35	1.35-1.55	0.20-0.60	0.13-0.22	Moderate	.43	.64		
	23-31	35-55	1.40-1.65	0.06-0.60	0.08-0.16	High-----	.32	.49		
	31-60	40-60	1.50-1.65	0.06-0.60	0.07-0.12	High-----	.32	.49		
	60-65	---	---	0.00-0.20	---	---------	---	---		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
CwD:										
Cruze----------	0-7	15-27	1.30-1.50	0.60-2.00	0.19-0.24	Low------	.43	.49	4	5
	7-18	20-35	1.35-1.55	0.20-0.60	0.13-0.22	Moderate	.43	.64		
	18-37	35-55	1.40-1.65	0.06-0.60	0.08-0.16	High-----	.32	.49		
	37-48	40-60	1.50-1.65	0.06-0.60	0.07-0.12	High-----	.32	.49		
	48-53	---	---	0.00-0.20	---	---------	---	---		
CwE:										
Cruze----------	0-9	15-27	1.30-1.50	0.60-2.00	0.19-0.24	Low------	.43	.49	4	5
	9-20	20-35	1.35-1.55	0.20-0.60	0.13-0.22	Moderate	.43	.64		
	20-37	35-55	1.40-1.65	0.06-0.60	0.08-0.16	High-----	.32	.49		
	37-48	40-60	1.50-1.65	0.06-0.60	0.07-0.12	High-----	.32	.49		
	48-53	---	---	0.00-0.20	---	---------	---	---		
DAM.										
Dam										
EeA:										
Eldean----------	0-13	15-25	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.43	4	5
	13-27	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	27-33	15-35	1.30-1.60	0.60-2.00	0.07-0.14	Low------	.37	.64		
	33-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
EeB:										
Eldean----------	0-7	15-25	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.43	4	5
	7-30	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	30-36	15-35	1.30-1.60	0.60-2.00	0.07-0.14	Low------	.37	.64		
	36-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
EeC2:										
Eldean----------	0-6	15-25	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.43	4	5
	6-24	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	24-30	15-35	1.30-1.60	0.60-2.00	0.07-0.14	Low------	.37	.64		
	30-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
EgA:										
Eldean----------	0-9	15-27	1.30-1.50	0.60-2.00	0.15-0.18	Low------	.28	.49	4	8
	9-27	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	27-32	15-35	1.30-1.60	0.60-2.00	0.07-0.14	Low------	.37	.64		
	32-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
EgB:										
Eldean----------	0-8	15-27	1.30-1.50	0.60-2.00	0.15-0.18	Low------	.28	.49	4	8
	8-26	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	26-31	15-35	1.30-1.60	0.60-2.00	0.07-0.14	Low------	.37	.64		
	31-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
EgC2:										
Eldean----------	0-3	15-27	1.30-1.50	0.60-2.00	0.15-0.18	Low------	.28	.49	4	8
	3-27	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	27-32	15-35	1.30-1.60	0.60-2.00	0.07-0.14	Low------	.37	.64		
	32-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
ErD:										
Ernest----------	0-8	15-20	1.20-1.40	0.60-2.00	0.14-0.20	Low------	.43	.43	4	5
	8-31	20-35	1.30-1.50	0.60-2.00	0.12-0.16	Moderate	.32	.32		
	31-62	18-30	1.40-1.70	0.06-0.60	0.08-0.12	Low------	.32	.37		
	62-70	18-30	1.30-1.60	0.06-0.60	0.08-0.12	Moderate	.32	.37		
EuA:										
Euclid----------	0-10	12-27	1.25-1.50	0.60-2.00	0.18-0.22	Low------	.37	.37	5	5
	10-47	18-35	1.45-1.65	0.20-0.60	0.15-0.19	Low------	.37	.37		
	47-80	15-35	1.45-1.60	0.20-0.60	0.14-0.18	Low------	.37	.37		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
FhA:										
Fitchville------	0-8	16-27	1.30-1.45	0.60-2.00	0.17-0.21	Low------	.37	.37	5	6
	8-56	20-35	1.45-1.70	0.20-0.60	0.15-0.19	Moderate	.37	.37		
	56-80	16-30	1.40-1.65	0.20-2.00	0.14-0.18	Low------	.37	.37		
FhB:										
Fitchville------	0-8	16-27	1.30-1.45	0.60-2.00	0.17-0.21	Low------	.37	.37	5	6
	8-56	20-35	1.45-1.70	0.20-0.60	0.15-0.19	Moderate	.37	.37		
	56-80	16-30	1.40-1.65	0.20-2.00	0.14-0.18	Low------	.37	.37		
FnB:										
Fox----------	0-9	10-17	1.35-1.55	0.60-2.00	0.17-0.24	Low------	.37	.37	4	5
	9-28	15-35	1.55-1.65	0.60-2.00	0.10-0.22	Moderate	.43	.43		
	28-30	5-35	1.55-1.65	0.60-2.00	0.10-0.19	Moderate	.32	.32		
	30-60	0-2	1.30-1.70	6.00-60.00	0.02-0.07	Low------	.10	---		
FnC2:										
Fox----------	0-9	10-17	1.35-1.55	0.60-2.00	0.17-0.24	Low------	.37	.37	4	5
	9-18	15-35	1.55-1.65	0.60-2.00	0.10-0.22	Moderate	.43	.43		
	18-34	5-35	1.55-1.65	0.60-2.00	0.10-0.19	Moderate	.32	.32		
	34-80	0-10	1.30-1.70	6.00-60.00	0.02-0.07	Low------	.10	---		
Ge:										
Gessie----------	0-10	18-27	1.00-1.20	0.60-2.00	0.20-0.24	Low------	.37	.37	5	4L
	10-80	15-35	1.00-1.20	0.60-2.00	0.17-0.22	Low------	.37	.37		
Gf:										
Gessie----------	0-8	18-27	1.00-1.20	0.60-2.00	0.20-0.24	Low------	.37	.37	5	4L
	8-80	15-35	1.00-1.20	0.60-2.00	0.17-0.22	Low------	.37	.37		
GgC2:										
Gilpin----------	0-9	15-27	1.20-1.40	0.60-2.00	0.12-0.18	Low------	.32	.32	3	8
	9-23	15-35	1.20-1.50	0.60-2.00	0.12-0.16	Low------	.24	.28		
	23-32	5-35	1.20-1.50	0.60-2.00	0.08-0.12	Low------	.24	.32		
	32-35	---	---	0.20-2.00	---	---------	---	---		
GhC:										
Gilpin----------	0-6	15-27	1.20-1.40	0.60-2.00	0.12-0.18	Low------	.32	.32	3	8
	6-27	15-35	1.20-1.50	0.60-2.00	0.12-0.16	Low------	.24	.28		
	27-33	5-35	1.20-1.50	0.60-2.00	0.08-0.12	Low------	.24	.32		
	33-35	---	---	0.20-2.00	---	---------	---	---		
Tilsit----------	0-5	10-25	1.20-1.55	0.60-2.00	0.16-0.22	Low------	.43	.43	4	5
	5-24	18-35	1.30-1.55	0.60-2.00	0.16-0.22	Low------	.43	.43		
	24-44	18-35	1.40-1.65	0.06-0.20	0.08-0.12	Low------	.43	.43		
	44-65	10-50	1.40-1.60	0.06-0.60	0.08-0.12	Low------	.43	.43		
	65-70	---	---	0.00-0.20	---	---------	---	---		
GnA:										
Glenford--------	0-10	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low------	.37	.37	5	6
	10-45	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	.43	.43		
	45-52	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low------	.43	.43		
	52-80	15-30	1.40-1.60	0.20-2.00	0.12-0.17	Low------	.37	.37		
GnB:										
Glenford--------	0-9	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low------	.37	.37	5	6
	9-17	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	.43	.43		
	17-47	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low------	.43	.43		
	47-80	15-30	1.40-1.60	0.20-2.00	0.12-0.17	Low------	.37	.37		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
HaB:										
Haubstadt-------	0-9	18-27	1.25-1.40	0.60-2.00	0.18-0.20	Low------	.43	.43	4	6
	9-29	20-35	1.30-1.45	0.60-2.00	0.16-0.19	Low------	.43	.43		
	29-60	24-35	1.60-1.80	0.06-0.20	0.06-0.08	Moderate	.43	.49		
	60-80	18-35	1.55-1.65	0.60-2.00	0.12-0.16	Low------	.43	.64		
HaC2:										
Haubstadt-------	0-8	18-27	1.25-1.40	0.60-2.00	0.18-0.20	Low------	.43	.43	4	6
	8-24	20-35	1.30-1.45	0.60-2.00	0.16-0.19	Low------	.43	.43		
	24-40	24-35	1.60-1.80	0.06-0.20	0.06-0.08	Moderate	.43	.49		
	40-80	18-35	1.55-1.65	0.60-2.00	0.12-0.16	Low------	.43	.64		
Hd:										
Haymond---------	0-9	10-20	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.49	.49	5	5
	9-62	10-18	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.55	.55		
	62-80	5-26	1.30-1.50	0.60-2.00	0.14-0.22	Low------	.43	.49		
HeA:										
Henshaw---------	0-8	12-27	1.20-1.40	0.60-2.00	0.18-0.23	Low------	.43	.43	5	5
	8-42	18-34	1.20-1.40	0.20-0.60	0.15-0.19	Low------	.43	.43		
	42-62	15-34	1.20-1.40	0.20-0.60	0.17-0.22	Low------	.43	.43		
HkD2:										
Hickory---------	0-5	19-25	1.30-1.50	0.60-2.00	0.20-0.22	Low------	.37	.37	5	6
	5-42	27-35	1.45-1.65	0.60-2.00	0.15-0.19	Moderate	.28	---		
	42-80	15-40	1.50-1.70	0.60-2.00	0.11-0.19	Low------	.28	---		
HkE2:										
Hickory---------	0-13	19-25	1.30-1.50	0.60-2.00	0.20-0.22	Low------	.37	.37	5	6
	13-46	27-35	1.45-1.65	0.60-2.00	0.15-0.19	Moderate	.28	---		
	46-80	15-40	1.50-1.70	0.60-2.00	0.11-0.19	Low------	.28	---		
Ht:										
Huntington------	0-12	15-25	1.10-1.30	0.60-2.00	0.18-0.24	Low------	.28	.28	5	4L
	12-55	18-30	1.30-1.50	0.60-2.00	0.16-0.22	Low------	.32	.32		
	55-80	5-30	1.30-1.50	0.60-2.00	0.10-0.16	Low------	.28	.32		
KaA:										
Kendallville----	0-8	8-24	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.43	5	6
	8-36	23-38	1.40-1.65	0.60-2.00	0.12-0.16	Moderate	.37	.55		
	36-80	12-30	1.45-1.75	0.20-0.60	0.11-0.15	Low------	.37	.43		
KaB:										
Kendallville----	0-6	8-24	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.43	5	6
	6-34	23-38	1.40-1.65	0.60-2.00	0.12-0.16	Moderate	.37	.55		
	34-80	12-30	1.45-1.75	0.20-0.60	0.11-0.15	Low------	.37	.43		
KeC2:										
Kendallville----	0-9	8-24	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.43	5	6
	9-39	23-38	1.40-1.65	0.60-2.00	0.12-0.16	Moderate	.37	.55		
	39-80	12-30	1.45-1.75	0.20-0.60	0.11-0.15	Low------	.37	.43		
Eldean----------	0-6	15-25	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.43	4	5
	6-36	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	36-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
KeD2:										
Kendallville----	0-5	8-24	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.43	5	6
	5-36	23-38	1.40-1.65	0.60-2.00	0.12-0.16	Moderate	.37	.55		
	36-80	12-30	1.45-1.75	0.20-0.60	0.11-0.15	Low------	.37	.43		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
KeD2:										
Eldean----------	0-3	15-25	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.43	4	5
	3-35	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	35-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
KeE2:										
Kendallville----	0-3	8-24	1.30-1.50	0.60-2.00	0.18-0.24	Low------	.37	.43	5	6
	3-35	23-38	1.40-1.65	0.60-2.00	0.12-0.16	Moderate	.37	.55		
	35-80	12-30	1.45-1.75	0.20-0.60	0.11-0.15	Low------	.37	.43		
Eldean----------	0-2	15-25	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.43	4	5
	2-22	35-48	1.40-1.60	0.20-2.00	0.08-0.14	Moderate	.37	.49		
	22-80	2-8	1.55-1.70	6.00-20.00	0.01-0.04	Low------	.10	.43		
Kn:										
Kinn----------	0-20	10-27	1.20-1.40	0.20-2.00	0.20-0.26	Low------	.32	.37	5	4
	20-38	10-35	1.20-1.40	0.20-2.00	0.17-0.22	Low------	.32	.37		
	38-50	10-35	1.20-1.40	0.20-2.00	0.18-0.24	Low------	.32	.37		
	50-80	10-35	1.20-1.40	0.20-2.00	0.12-0.18	Low------	.32	.20		
Ko:										
Kokomo----------	0-12	20-27	1.30-1.45	0.60-2.00	0.20-0.24	Moderate	.32	.32	5	6
	12-42	30-45	1.40-1.60	0.20-0.60	0.18-0.20	Moderate	.32	.32		
	42-64	15-30	1.50-1.75	0.20-0.60	0.05-0.19	Low------	.32	.37		
Kp:										
Kokomo----------	0-18	27-35	1.35-1.50	0.60-2.00	0.17-0.19	Moderate	.32	.32	5	7
	18-42	30-45	1.40-1.60	0.20-0.60	0.18-0.20	Moderate	.32	.32		
	42-80	15-30	1.50-1.75	0.20-0.60	0.05-0.19	Low------	.32	.37		
LfC2:										
Latham----------	0-8	20-27	1.30-1.50	0.60-2.00	0.16-0.20	Low------	.43	.49	3	6
	8-35	35-55	1.40-1.70	0.06-0.20	0.11-0.15	High-----	.32	.43		
	35-40	---	---	0.00-0.20	---	---------	---	---		
LfD2:										
Latham----------	0-4	20-27	1.30-1.50	0.60-2.00	0.16-0.20	Low------	.43	.49	3	6
	4-31	35-55	1.40-1.70	0.06-0.20	0.11-0.15	High-----	.32	.43		
	31-35	---	---	0.00-0.20	---	---------	---	---		
LfE:										
Latham----------	0-5	20-27	1.30-1.50	0.60-2.00	0.16-0.20	Low------	.43	.49	3	6
	5-38	35-55	1.40-1.70	0.06-0.20	0.11-0.15	High-----	.32	.43		
	38-40	---	---	0.00-0.20	---	---------	---	---		
LgD:										
Latham----------	0-8	20-27	1.30-1.50	0.60-2.00	0.16-0.20	Low------	.43	.49	3	6
	8-34	35-55	1.40-1.70	0.06-0.20	0.11-0.15	High-----	.32	.43		
	34-40	---	---	0.00-0.20	---	---------	---	---		
Wharton---------	0-5	10-25	1.15-1.30	0.60-2.00	0.16-0.22	Low------	.32	.32	5	5
	5-48	18-45	1.30-1.55	0.60-2.00	0.10-0.20	Low------	.28	.32		
	48-66	15-45	1.30-1.55	0.60-6.00	0.08-0.16	Low------	.17	.28		
LrB:										
Libre----------	0-10	12-24	1.25-1.40	0.60-2.00	0.22-0.24	Low------	.37	.37	5	5
	10-33	15-35	1.30-1.45	0.60-2.00	0.18-0.23	Low------	.37	.37		
	33-53	15-35	1.70-1.85	0.20-0.60	0.16-0.18	Low------	.37	.37		
	53-80	15-35	1.35-1.60	0.20-2.00	0.16-0.18	Low------	.37	.32		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Shrink-swell potential	Erosion factors Kw	Kf	T	Wind erodi-bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
LrC2:										
Libre----------	0-6	12-24	1.25-1.40	0.60-2.00	0.22-0.24	Low------	.37	.37	5	5
	6-26	15-35	1.30-1.45	0.60-2.00	0.18-0.23	Low------	.37	.37		
	26-56	15-35	1.70-1.85	0.20-0.60	0.16-0.18	Low------	.37	.37		
	56-80	15-35	1.35-1.60	0.20-2.00	0.16-0.18	Low------	.37	.32		
MaB:										
Markland--------	0-11	20-27	1.30-1.55	0.60-2.00	0.18-0.24	Low------	.49	.49	4	6
	11-37	35-55	1.55-1.65	0.20-0.60	0.12-0.18	High-----	.32	.32		
	37-80	20-50	1.50-1.65	0.06-0.60	0.12-0.22	Moderate	.43	.43		
MbC2:										
Markland--------	0-6	27-35	1.40-1.60	0.60-2.00	0.16-0.21	Moderate	.43	.43	4	7
	6-36	35-55	1.55-1.65	0.20-0.60	0.12-0.18	High-----	.32	.32		
	36-80	20-50	1.50-1.65	0.06-0.60	0.12-0.22	Moderate	.43	.43		
MbD2:										
Markland--------	0-6	27-35	1.40-1.60	0.60-2.00	0.16-0.21	Moderate	.43	.43	4	7
	6-28	35-55	1.55-1.65	0.20-0.60	0.12-0.18	High-----	.32	.32		
	28-80	20-50	1.50-1.65	0.06-0.60	0.12-0.22	Moderate	.43	.43		
MbE2:										
Markland--------	0-3	27-35	1.40-1.60	0.60-2.00	0.16-0.21	Moderate	.43	.43	4	7
	3-22	35-55	1.55-1.65	0.20-0.60	0.12-0.18	High-----	.32	.32		
	22-80	20-50	1.50-1.65	0.06-0.60	0.12-0.22	Moderate	.43	.43		
McA:										
Martinsville----	0-11	15-27	1.20-1.40	0.60-2.00	0.22-0.24	Low------	.37	.37	5	6
	11-26	15-35	1.30-1.50	0.60-2.00	0.18-0.20	Moderate	.37	.37		
	26-55	5-45	1.40-1.60	0.60-2.00	0.15-0.19	Moderate	.37	.37		
	55-80	10-20	1.50-1.65	0.60-2.00	0.11-0.16	Low------	.37	.37		
MdA:										
McGary----------	0-6	20-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	.49	.49	3	6
	6-42	35-50	1.45-1.60	0.06-0.60	0.11-0.18	High-----	.32	.32		
	42-80	35-50	1.50-1.65	0.01-0.06	0.11-0.18	Moderate	.43	.43		
MdB:										
McGary----------	0-10	20-27	1.30-1.60	0.60-2.00	0.18-0.24	Low------	.49	.49	3	6
	10-42	30-50	1.45-1.60	0.06-0.60	0.11-0.18	High-----	.32	.32		
	42-80	35-50	1.50-1.65	0.01-0.06	0.11-0.18	Moderate	.43	.43		
MeC2:										
Mentor----------	0-6	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.32	.32	5	5
	6-40	16-35	1.40-1.60	0.60-2.00	0.18-0.20	Low------	.37	.37		
	40-80	13-30	1.20-1.50	0.60-2.00	0.12-0.18	Low------	.37	.37		
MeD2:										
Mentor----------	0-3	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	5	5
	3-40	16-35	1.40-1.60	0.60-2.00	0.18-0.20	Low------	.37	.37		
	40-80	13-30	1.20-1.50	0.60-2.00	0.12-0.18	Low------	.37	.37		
MfA:										
Mentor----------	0-12	16-24	1.36-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	5	5
	12-53	16-35	1.30-1.60	0.60-2.00	0.18-0.20	Low------	.37	.37		
	53-80	13-30	1.20-1.50	0.60-2.00	0.12-0.18	Low------	.37	.37		
MgA:										
Mentor----------	0-10	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	5	5
	10-53	16-35	1.30-1.60	0.60-2.00	0.18-0.20	Low------	.37	.37		
	53-59	5-30	1.20-1.50	0.60-2.00	0.12-0.18	Low------	.37	.55		
	59-80	5-30	1.20-1.50	2.00-6.00	0.06-0.15	Low------	.28	.64		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
MgB:										
Mentor----------	0-10	16-24	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	5	5
	10-42	16-35	1.30-1.60	0.60-2.00	0.18-0.20	Low------	.37	.37		
	42-57	5-30	1.20-1.50	0.60-2.00	0.12-0.18	Low------	.37	.55		
	57-80	5-30	1.20-1.50	2.00-6.00	0.06-0.15	Low------	.28	.64		
MhB:										
Miamian---------	0-8	14-27	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	8-25	20-40	1.40-1.60	0.20-0.60	0.16-0.20	Moderate	.37	.43		
	25-80	16-32	1.60-1.85	0.20-0.60	0.06-0.10	Low------	.37	.49		
MhB2:										
Miamian---------	0-5	14-27	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	5-25	35-45	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.37	.43		
	25-80	16-32	1.60-1.85	0.20-0.60	0.06-0.10	Low------	.37	.49		
MhC2:										
Miamian---------	0-6	14-27	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	6-30	35-45	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.37	.43		
	30-80	16-32	1.60-1.85	0.20-0.60	0.06-0.10	Low------	.37	.49		
MhD2:										
Miamian---------	0-4	14-27	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	4-22	35-48	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.37	.43		
	22-80	16-32	1.60-1.85	0.20-0.60	0.06-0.10	Low------	.37	.49		
MhE:										
Miamian---------	0-3	14-27	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	3-7	20-40	1.40-1.60	0.20-0.60	0.16-0.20	Moderate	.37	.43		
	7-37	35-48	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.37	.43		
	37-80	16-32	1.60-1.85	0.20-0.60	0.06-0.10	Low------	.37	.49		
MmC2:										
Miamian---------	0-9	14-27	1.30-1.50	0.60-2.00	0.17-0.20	Low------	.37	.37	4	6
	9-23	35-48	1.45-1.70	0.20-0.60	0.12-0.18	Moderate	.37	.43		
	23-31	35-45	1.55-1.75	0.20-0.60	0.10-0.17	Moderate	.37	.43		
	31-56	18-40	1.60-1.80	0.20-0.60	0.04-0.08	Moderate	.37	.64		
	56-60	---	---	0.00-0.20	---	---------	---	---		
MmD2:										
Miamian---------	0-3	14-27	1.30-1.50	0.60-2.00	0.17-0.20	Low------	.37	.37	4	6
	3-23	35-48	1.45-1.70	0.20-0.60	0.12-0.18	Moderate	.37	.43		
	23-26	30-45	1.55-1.75	0.20-0.60	0.10-0.17	Moderate	.37	.43		
	26-50	18-40	1.60-1.80	0.20-0.60	0.04-0.08	Moderate	.37	.64		
	50-60	---	---	0.00-0.20	---	---------	---	---		
MnB:										
Miamian---------	0-9	14-27	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.37	.37	4	6
	9-13	20-40	1.40-1.60	0.20-0.60	0.16-0.20	Moderate	.37	.43		
	13-32	35-48	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.37	.43		
	32-80	16-32	1.60-1.85	0.20-0.60	0.06-0.10	Low------	.37	.49		
Lewisburg-------	0-7	16-27	1.30-1.55	0.60-2.00	0.18-0.24	Low------	.43	.43	3	6
	7-18	35-45	1.40-1.70	0.20-2.00	0.11-0.17	Moderate	.32	.37		
	18-80	22-27	1.70-2.00	0.06-0.20	0.08-0.12	Low------	.32	.37		
MoB:										
Milton----------	0-7	14-27	1.30-1.50	0.60-2.00	0.18-0.23	Low------	.37	.37	2	6
	7-17	30-50	1.45-1.65	0.20-2.00	0.12-0.18	Moderate	.37	.43		
	17-25	18-45	1.40-1.70	0.20-2.00	0.12-0.16	Moderate	.37	.43		
	25-30	---	---	0.06-0.60	---	---------	---	---		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
MoC2:										
Milton----------	0-5	14-27	1.30-1.50	0.60-2.00	0.18-0.23	Low------	.37	.37	2	6
	5-12	30-50	1.45-1.65	0.20-2.00	0.12-0.18	Moderate	.37	.43		
	12-22	18-45	1.40-1.70	0.20-2.00	0.12-0.16	Moderate	.37	.43		
	22-25	---	---	0.06-0.60	---	---------	---	---		
MoE2:										
Milton----------	0-4	14-27	1.30-1.50	0.60-2.00	0.18-0.23	Low------	.37	.37	2	6
	4-12	30-50	1.45-1.65	0.20-2.00	0.12-0.18	Moderate	.37	.43		
	12-22	18-45	1.40-1.70	0.20-2.00	0.12-0.16	Moderate	.37	.43		
	22-25	---	---	0.06-0.60	---	---------	---	---		
NeC2:										
Negley----------	0-6	12-27	1.30-1.50	2.00-6.00	0.16-0.22	Low------	.32	.37	5	5
	6-15	10-35	1.30-1.60	0.60-6.00	0.10-0.16	Low------	.32	.55		
	15-80	20-40	1.20-1.60	0.60-6.00	0.06-0.14	Low------	.32	.49		
NeD2:										
Negley----------	0-8	12-27	1.30-1.50	2.00-6.00	0.16-0.22	Low------	.32	.37	5	5
	8-18	10-35	1.30-1.60	0.60-6.00	0.10-0.16	Low------	.32	.55		
	18-80	20-40	1.20-1.60	0.60-6.00	0.06-0.14	Low------	.32	.49		
NeE2:										
Negley----------	0-7	12-27	1.30-1.50	2.00-6.00	0.16-0.22	Low------	.32	.37	5	5
	7-38	10-30	1.30-1.60	0.60-6.00	0.10-0.16	Low------	.32	.55		
	38-80	20-40	1.20-1.60	0.60-6.00	0.06-0.14	Low------	.32	.49		
NnA:										
Nineveh---------	0-15	18-25	1.30-1.45	0.60-2.00	0.20-0.22	Low------	.28	.32	4	6
	15-22	25-35	1.45-1.60	0.60-2.00	0.15-0.19	Moderate	.28	.32		
	22-33	25-35	1.40-1.55	0.60-2.00	0.13-0.16	Moderate	.20	.28		
	33-37	18-35	1.40-1.55	0.60-2.00	0.19-0.21	Moderate	.10	.20		
	37-80	2-5	1.50-1.65	20.00-99.90	0.03-0.06	Low------	.10	.37		
NnB:										
Nineveh---------	0-14	18-25	1.30-1.45	0.60-2.00	0.20-0.22	Low------	.28	.32	4	6
	14-22	25-35	1.45-1.60	0.60-2.00	0.15-0.19	Moderate	.28	.32		
	22-32	25-35	1.40-1.55	0.60-2.00	0.13-0.16	Moderate	.20	.28		
	32-35	18-35	1.40-1.55	0.60-2.00	0.19-0.21	Moderate	.10	.20		
	35-80	2-5	1.50-1.65	20.00-99.90	0.03-0.06	Low------	.10	.37		
ObA:										
Ockley----------	0-11	11-22	1.30-1.60	0.60-2.00	0.16-0.24	Low------	.32	.37	4	5
	11-20	18-30	1.40-1.60	0.60-2.00	0.13-0.20	Moderate	.32	.37		
	20-50	15-35	1.40-1.70	0.60-6.00	0.05-0.20	Moderate	.10	.20		
	50-80	5-25	1.60-1.80	20.00-99.90	0.02-0.04	Low------	.02	.10		
ObB:										
Ockley----------	0-10	11-22	1.30-1.60	0.60-2.00	0.16-0.24	Low------	.32	.37	4	5
	10-19	18-30	1.40-1.60	0.60-2.00	0.13-0.20	Moderate	.32	.37		
	19-55	15-35	1.40-1.70	0.60-6.00	0.05-0.20	Moderate	.10	.20		
	55-80	5-25	1.60-1.80	20.00-99.90	0.02-0.04	Low------	.02	.10		
OmB:										
Omulga----------	0-7	12-18	1.25-1.40	0.60-2.00	0.22-0.24	Low------	.43	.43	4	5
	7-28	15-35	1.30-1.45	0.60-2.00	0.18-0.22	Moderate	.43	.43		
	28-60	15-35	1.60-1.80	0.06-0.20	0.06-0.08	Moderate	.43	.49		
	60-80	15-35	1.50-1.60	0.20-0.60	0.18-0.21	Moderate	.43	.49		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
OmC2:										
Omulga----------	0-5	12-18	1.25-1.40	0.60-2.00	0.22-0.24	Low------	.43	.43	4	5
	5-24	15-35	1.30-1.45	0.60-2.00	0.18-0.22	Moderate	.43	.43		
	24-40	15-35	1.60-1.80	0.06-0.20	0.06-0.08	Moderate	.43	.49		
	40-80	15-35	1.50-1.60	0.20-0.60	0.18-0.21	Moderate	.43	.49		
Or:										
Orrville--------	0-8	12-27	1.25-1.45	0.60-2.00	0.18-0.22	Low------	.37	.37	5	6
	8-35	15-30	1.30-1.50	0.60-2.00	0.15-0.19	Low------	.37	.43		
	35-80	5-35	1.20-1.40	0.60-6.00	0.08-0.15	Low------	.37	.49		
OwB:										
Otwell----------	0-7	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	.43	.43	4	6
	7-27	15-35	1.30-1.45	0.20-0.60	0.18-0.22	Low------	.43	.43		
	27-50	10-30	1.60-1.80	0.00-0.06	0.06-0.08	Moderate	.43	.43		
	50-80	20-45	1.55-1.65	0.06-0.20	0.19-0.21	Moderate	.43	.43		
Pc:										
Patton----------	0-10	27-35	1.15-1.35	0.60-2.00	0.20-0.22	Moderate	.28	.28	5	7
	10-47	27-35	1.25-1.45	0.60-2.00	0.18-0.20	Moderate	.43	.43		
	47-80	5-35	1.20-1.50	0.60-2.00	0.06-0.14	Low------	.28	.28		
Pg:										
Peoga----------	0-9	12-22	1.30-1.60	0.60-2.00	0.18-0.24	Low------	.64	.64	5	5
	9-65	18-34	1.40-1.55	0.20-0.60	0.20-0.24	Low------	.55	.55		
	65-80	18-40	1.35-1.55	0.06-0.20	0.06-0.08	Low------	.55	.55		
PkA:										
Pike----------	0-8	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	.37	.37	5	6
	8-46	22-35	1.30-1.45	0.60-2.00	0.18-0.22	Low------	.37	.37		
	46-80	18-35	1.30-1.45	0.60-2.00	0.12-0.18	Low------	.37	.49		
PkB:										
Pike----------	0-10	18-27	1.25-1.40	0.60-2.00	0.22-0.24	Low------	.37	.37	5	6
	10-44	22-35	1.30-1.45	0.60-2.00	0.18-0.22	Low------	.37	.37		
	44-80	22-35	1.30-1.45	0.60-2.00	0.12-0.18	Low------	.37	.49		
Pn.										
Pits, gravel										
Po.										
Pits, quarry										
Pp:										
Pope----------	0-9	10-20	1.20-1.40	0.60-2.00	0.14-0.23	Low------	.37	.37	5	5
	9-40	10-25	1.30-1.60	0.60-6.00	0.10-0.18	Low------	.28	.28		
	40-60	5-15	1.30-1.60	0.60-6.00	0.10-0.18	Low------	.28	.20		
PtB:										
Princeton-------	0-10	12-20	1.35-1.50	0.60-2.00	0.13-0.18	Low------	.24	.24	5	3
	10-19	5-35	1.40-1.55	0.60-2.00	0.16-0.18	Low------	.32	.32		
	19-80	8-22	1.40-1.55	2.00-6.00	0.12-0.14	Low------	.32	.32		
PtC:										
Princeton-------	0-6	12-20	1.35-1.50	0.60-2.00	0.13-0.18	Low------	.24	.24	5	3
	6-17	15-35	1.40-1.55	0.60-2.00	0.16-0.18	Low------	.32	.32		
	17-80	8-22	1.40-1.55	2.00-6.00	0.12-0.14	Low------	.32	.32		
PtD:										
Princeton-------	0-10	12-20	1.35-1.50	0.60-2.00	0.13-0.18	Low------	.24	.24	5	3
	10-30	15-35	1.40-1.55	0.60-2.00	0.16-0.18	Low------	.32	.32		
	30-80	8-22	1.40-1.55	2.00-6.00	0.12-0.14	Low------	.32	.32		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
RbA:										
Rainsboro-------	0-10	13-27	1.40-1.55	0.60-2.00	0.22-0.24	Low------	.43	.43	4	5
	10-36	15-35	1.40-1.60	0.20-2.00	0.18-0.22	Moderate	.43	.43		
	36-65	10-30	1.70-1.90	0.06-0.60	0.09-0.15	Low------	.43	.64		
	65-80	5-30	1.55-1.75	0.60-6.00	0.12-0.17	Low------	.28	.49		
RbB:										
Rainsboro-------	0-8	13-27	1.40-1.55	0.60-2.00	0.22-0.24	Low------	.43	.43	4	5
	8-34	15-35	1.40-1.60	0.20-2.00	0.18-0.22	Moderate	.43	.43		
	34-60	10-35	1.70-1.90	0.06-0.60	0.09-0.15	Low------	.43	.64		
	60-80	10-35	1.55-1.75	0.60-6.00	0.12-0.17	Low------	.28	.49		
RbC2:										
Rainsboro-------	0-6	13-27	1.40-1.55	0.60-2.00	0.22-0.24	Low------	.43	.43	4	5
	6-28	15-35	1.40-1.60	0.20-2.00	0.18-0.22	Moderate	.43	.43		
	28-60	15-35	1.70-1.90	0.06-0.60	0.12-0.16	Moderate	.43	.43		
	60-80	10-30	1.55-1.75	0.60-6.00	0.12-0.17	Low------	.28	.49		
RcF:										
Rigley----------	0-7	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low------	.24	.24	5	3
	7-44	10-20	1.30-1.60	2.00-6.00	0.09-0.15	Low------	.17	.20		
	44-60	5-35	1.30-1.60	2.00-6.00	0.07-0.15	Low------	.17	.24		
Rock outcrop.										
RdD2:										
Rodman----------	0-7	8-25	1.20-1.50	2.00-6.00	0.10-0.12	Low------	.20	.32	3	8
	7-15	5-25	1.10-1.50	2.00-6.00	0.09-0.12	Low------	.20	.32		
	15-80	0-10	1.60-1.70	20.00-99.90	0.02-0.04	Low------	.10	.37		
RdE2:										
Rodman----------	0-2	8-25	1.20-1.50	2.00-6.00	0.10-0.12	Low------	.20	.32	3	8
	2-15	0-25	1.10-1.50	2.00-6.00	0.09-0.12	Low------	.20	.32		
	15-80	0-10	1.60-1.70	20.00-99.90	0.02-0.04	Low------	.10	.37		
Rn:										
Ross----------	0-8	15-27	1.20-1.45	0.60-2.00	0.19-0.24	Low------	.32	.32	5	5
	8-29	15-27	1.20-1.45	0.60-2.00	0.19-0.24	Low------	.32	.32		
	29-40	18-32	1.20-1.50	0.60-2.00	0.16-0.22	Low------	.32	.32		
	40-80	0-10	1.35-1.60	0.60-6.00	0.05-0.18	Low------	.32	.49		
Ro:										
Rossburg--------	0-10	13-27	1.20-1.50	0.60-2.00	0.19-0.24	Low------	.37	.37	5	6
	10-17	13-27	1.20-1.50	0.60-2.00	0.19-0.24	Low------	.37	.37		
	17-47	5-15	1.25-1.60	0.60-2.00	0.15-0.22	Low------	.37	.37		
	47-80	5-15	1.30-1.60	2.00-20.00	0.05-0.15	Low------	.24	.28		
RpA:										
Rossmoyne-------	0-9	13-27	1.35-1.50	0.60-2.00	0.20-0.24	Low------	.43	.43	4	6
	9-26	10-40	1.40-1.60	0.60-2.00	0.14-0.19	Moderate	.43	.43		
	26-60	10-35	1.70-1.90	0.06-0.60	0.06-0.10	Moderate	.43	.49		
	60-80	20-45	1.60-1.75	0.06-0.60	0.06-0.10	Moderate	.43	.55		
RpB:										
Rossmoyne-------	0-11	13-27	1.35-1.50	0.60-2.00	0.20-0.24	Low------	.43	.43	4	6
	11-29	10-40	1.40-1.60	0.60-2.00	0.14-0.19	Moderate	.43	.43		
	29-65	10-35	1.70-1.90	0.06-0.60	0.06-0.10	Moderate	.43	.49		
	65-80	20-45	1.60-1.75	0.06-0.60	0.06-0.10	Moderate	.43	.55		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
RpC2:										
Rossmoyne-------	0-7	13-27	1.35-1.50	0.60-2.00	0.20-0.24	Low------	.43	.43	4	6
	7-28	22-40	1.40-1.60	0.60-2.00	0.14-0.19	Moderate	.43	.43		
	28-60	24-35	1.70-1.90	0.06-0.60	0.06-0.10	Moderate	.43	.49		
	60-80	20-45	1.60-1.75	0.06-0.60	0.06-0.10	Moderate	.43	.55		
RsB:										
Rossmoyne-------	0-5	13-27	1.35-1.50	0.60-2.00	0.20-0.24	Low------	.43	.43	4	6
	5-23	10-40	1.40-1.60	0.60-2.00	0.14-0.19	Moderate	.43	.43		
	23-60	10-35	1.70-1.90	0.06-0.60	0.06-0.10	Moderate	.43	.49		
	60-80	20-45	1.60-1.75	0.06-0.60	0.06-0.10	Moderate	.43	.55		
Cana----------	0-5	12-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.37	4	6
	5-14	16-35	1.30-1.65	0.20-2.00	0.15-0.20	Moderate	.37	.37		
	14-42	26-45	1.40-1.65	0.20-2.00	0.13-0.18	Moderate	.37	.43		
	42-51	26-45	1.40-1.75	0.06-0.20	0.06-0.12	Moderate	.37	.55		
	51-60	---	---	0.00-0.20	---	---------	---	---		
RsC2:										
Rossmoyne-------	0-7	13-27	1.35-1.50	0.60-2.00	0.20-0.24	Low------	.43	.43	4	6
	7-22	22-40	1.40-1.60	0.60-2.00	0.14-0.19	Moderate	.43	.43		
	22-60	24-35	1.70-1.90	0.06-0.60	0.06-0.10	Moderate	.43	.49		
	60-80	20-45	1.70-1.90	0.06-0.60	0.06-0.10	Moderate	.43	.49		
Cana----------	0-7	12-27	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.37	.37	4	6
	7-16	16-35	1.30-1.65	0.20-2.00	0.15-0.20	Moderate	.37	.37		
	16-42	26-45	1.40-1.65	0.20-2.00	0.13-0.18	Moderate	.37	.43		
	42-48	26-45	1.40-1.75	0.06-0.20	0.06-0.12	Moderate	.37	.55		
	48-60	---	---	0.00-0.20	---	---------	---	---		
SfD:										
Shelocta--------	0-4	10-25	1.15-1.30	0.60-2.00	0.16-0.22	Low------	.32	.32	5	5
	4-50	15-35	1.30-1.55	0.60-2.00	0.10-0.20	Low------	.28	.32		
	50-80	15-35	1.30-1.55	0.60-6.00	0.08-0.16	Low------	.17	.28		
SgF:										
Shelocta--------	0-10	10-25	1.15-1.30	0.60-2.00	0.16-0.22	Low------	.32	.32	5	5
	10-55	15-35	1.30-1.55	0.60-2.00	0.10-0.20	Low------	.28	.32		
	55-80	15-35	1.30-1.55	0.60-6.00	0.08-0.16	Low------	.17	.28		
Brownsville-----	0-5	8-18	1.20-1.45	0.60-6.00	0.09-0.17	Low------	.20	.43	4	8
	5-32	8-22	1.30-1.60	0.60-6.00	0.07-0.14	Low------	.17	.55		
	32-42	8-22	1.30-1.60	2.00-6.00	0.03-0.12	Low------	.17	.64		
	42-45	---	---	0.20-0.60	---	---------	---	---		
ShE:										
Shelocta--------	0-7	10-25	1.15-1.30	0.60-2.00	0.16-0.22	Low------	.32	.32	5	5
	7-55	15-35	1.30-1.55	0.60-2.00	0.10-0.20	Low------	.28	.32		
	55-80	15-35	1.30-1.55	0.60-6.00	0.08-0.16	Low------	.17	.28		
Cruze----------	0-6	15-27	1.30-1.50	0.60-2.00	0.19-0.24	Low------	.43	.49	4	5
	6-28	15-35	1.35-1.55	0.20-0.60	0.13-0.22	Moderate	.43	.64		
	28-37	30-50	1.40-1.65	0.06-0.60	0.08-0.16	High-----	.32	.49		
	37-48	30-50	1.50-1.65	0.06-0.60	0.07-0.12	High-----	.32	.49		
	48-53	---	---	0.00-0.20	---	---------	---	---		
Weikert---------	0-6	15-25	1.20-1.40	2.00-6.00	0.20-0.24	Low------	.32	.32	2	5
	6-12	15-25	1.20-1.40	2.00-6.00	0.04-0.08	Low------	.28	.37		
	12-15	---	---	0.60-20.00	---	---------	---	---		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
SkE:										
Shelocta--------	0-5	10-25	1.15-1.30	0.60-2.00	0.16-0.22	Low------	.32	.32	5	5
	5-48	15-35	1.30-1.55	0.60-2.00	0.10-0.20	Low------	.28	.32		
	48-62	15-35	1.30-1.55	0.60-6.00	0.08-0.16	Low------	.17	.28		
Rigley----------	0-6	7-18	1.20-1.40	2.00-6.00	0.09-0.15	Low------	.15	.24	5	5
	6-50	10-25	1.30-1.60	2.00-6.00	0.09-0.15	Low------	.17	.20		
	50-60	5-40	1.30-1.60	2.00-6.00	0.07-0.15	Low------	.17	.24		
Sp:										
Skidmore--------	0-10	7-18	1.20-1.40	2.00-6.00	0.07-0.13	Low------	.17	.24	5	3
	10-25	5-25	1.20-1.40	2.00-6.00	0.07-0.13	Low------	.17	.24		
	25-80	5-35	1.30-1.60	2.00-6.00	0.04-0.10	Low------	.17	.24		
St:										
Sloan----------	0-16	27-33	1.25-1.50	0.60-2.00	0.20-0.23	Moderate	.28	.28	5	7
	16-53	20-40	1.25-1.55	0.20-2.00	0.15-0.19	Moderate	.37	.37		
	53-80	5-35	1.20-1.50	0.20-2.00	0.13-0.18	Low------	.37	.43		
SuB:										
Spargus---------	0-10	12-27	1.15-1.30	0.60-2.00	0.10-0.18	Low------	.28	.28	5	6
	10-45	15-35	1.30-1.55	0.60-2.00	0.10-0.20	Low------	.28	.28		
	45-80	15-35	1.30-1.55	0.60-2.00	0.08-0.16	Low------	.17	.24		
Sv:										
Stonelick-------	0-8	10-22	1.20-1.45	0.60-2.00	0.15-0.20	Low------	.32	.37	5	5
	8-80	5-18	1.30-1.55	2.00-6.00	0.08-0.14	Low------	.24	.28		
Sw:										
Stonelick-------	0-6	8-20	1.25-1.50	2.00-6.00	0.09-0.14	Low------	.24	.28	5	3
	6-80	5-18	1.30-1.55	2.00-6.00	0.08-0.14	Low------	.24	.28		
TbA:										
Taggart---------	0-11	15-25	1.30-1.45	0.60-2.00	0.22-0.24	Low------	.37	.37	5	5
	11-33	20-40	1.40-1.60	0.06-0.20	0.18-0.20	Moderate	.37	.37		
	33-80	20-35	1.40-1.60	0.60-2.00	0.19-0.21	Low------	.37	.43		
ThC3:										
Thrifton--------	0-6	27-40	1.45-1.70	0.20-0.60	0.12-0.17	Low------	.32	.37	5	6
	6-14	30-45	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.32	.37		
	14-80	15-25	1.80-1.95	0.06-0.20	0.06-0.10	Low------	.32	.32		
ThD3:										
Thrifton--------	0-8	27-40	1.45-1.70	0.20-0.60	0.12-0.17	Low------	.32	.37	5	6
	8-14	30-45	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.32	.37		
	14-80	15-25	1.80-1.95	0.06-0.20	0.06-0.10	Low------	.32	.32		
ThE3:										
Thrifton--------	0-5	27-40	1.45-1.70	0.20-0.60	0.12-0.17	Low------	.32	.37	5	6
	5-12	30-45	1.45-1.70	0.20-0.60	0.12-0.17	Moderate	.32	.37		
	12-80	15-25	1.80-1.95	0.06-0.20	0.06-0.10	Low------	.32	.32		
TnA:										
Tilsit----------	0-9	15-25	1.20-1.55	0.60-2.00	0.16-0.22	Low------	.43	.43	4	5
	9-23	18-40	1.30-1.55	0.60-2.00	0.16-0.22	Low------	.43	.43		
	23-43	18-40	1.40-1.65	0.06-0.20	0.08-0.12	Low------	.43	.43		
	43-50	20-50	1.40-1.60	0.06-0.60	0.08-0.12	Low------	.43	.43		
	50-55	---	---	0.00-0.20	---	---------	---	---		

Table 23.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Shrink- swell potential	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
To:										
Tioga----------	0-8	5-20	1.15-1.40	0.60-6.00	0.15-0.21	Low------	.37	.37	5	5
	8-32	5-15	1.15-1.45	0.60-6.00	0.07-0.20	Low------	.28	.32		
	32-80	0-22	1.25-1.55	0.60-20.00	0.02-0.20	Low------	.28	.32		
TyA:										
Tyler----------	0-14	15-25	1.30-1.50	0.60-2.00	0.18-0.22	Low------	.43	.43	4	5
	14-18	20-40	1.40-1.60	0.20-0.60	0.16-0.20	Moderate	.43	.43		
	18-59	20-40	1.60-1.85	0.00-0.20	0.04-0.12	Low------	.43	.49		
	59-80	10-30	1.30-1.70	0.20-0.60	0.04-0.12	Low------	.43	.49		
Ud. Udorthents										
W. Water										
WcA:										
Warsaw----------	0-12	15-25	1.30-1.50	0.60-2.00	0.20-0.24	Low------	.28	.28	4	5
	12-25	15-35	1.35-1.60	0.60-2.00	0.16-0.19	Low------	.28	.32		
	25-28	15-35	1.40-1.65	0.60-2.00	0.13-0.16	Low------	.28	.43		
	28-80	0-5	1.40-1.65	20.00-99.90	0.02-0.04	Low------	.10	.37		
Wk:										
Westland--------	0-13	25-35	1.45-1.55	0.60-2.00	0.17-0.23	Moderate	.28	.28	4	6
	13-39	20-40	1.40-1.65	0.60-2.00	0.15-0.20	Moderate	.28	.32		
	39-57	10-35	1.55-1.70	0.60-2.00	0.04-0.13	Low------	.28	.37		
	57-80	0-5	1.65-1.95	20.00-99.90	0.01-0.04	Low------	.10	.24		
WtB:										
Wyatt----------	0-10	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Low------	.43	.43	5	6
	10-48	30-60	1.35-1.70	0.06-0.20	0.09-0.13	High-----	.32	.32		
	48-80	30-60	1.45-1.75	0.00-0.20	0.04-0.06	High-----	.32	.32		
WyC2:										
Wyatt----------	0-8	27-40	1.35-1.60	0.20-0.60	0.21-0.23	Moderate	.43	.43	5	7
	8-50	30-60	1.35-1.70	0.06-0.20	0.09-0.13	High-----	.32	.32		
	50-80	30-60	1.45-1.75	0.00-0.20	0.04-0.06	High-----	.32	.32		
WyD2:										
Wyatt----------	0-6	27-40	1.35-1.60	0.20-0.60	0.21-0.23	Moderate	.43	.43	5	7
	6-35	30-60	1.35-1.70	0.06-0.20	0.09-0.13	High-----	.32	.32		
	35-80	30-60	1.45-1.75	0.00-0.20	0.04-0.06	High-----	.32	.32		

Table 24.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
Aa:					
Adrian----------	0-22	5.1-7.8	55-75	110-150	0
	22-80	5.6-8.4	---	1.0-2.0	0
AcC2:					
Alexandria------	0-7	5.1-7.3	1.0-3.0	8.0-20	0
	7-38	4.5-7.8	0.5-1.0	14-26	0
	38-80	7.4-8.4	0.1-0.3	9.0-20	8-22
AcD2:					
Alexandria------	0-6	5.1-7.3	1.0-3.0	8.0-20	0
	6-27	4.5-7.8	0.5-1.0	14-26	0
	27-80	7.4-8.4	0.1-0.3	9.0-20	8-22
AcE2:					
Alexandria------	0-4	5.1-7.3	1.0-3.0	8.0-20	0
	4-37	4.5-7.8	0.5-1.0	14-26	0
	37-80	7.4-8.4	0.1-0.3	9.0-20	8-22
AeE2:					
Alexandria------	0-9	5.1-7.3	1.0-3.0	8.0-20	0
	9-38	4.5-7.8	0.5-1.0	14-26	0
	38-80	7.4-8.4	0.1-0.3	9.0-20	8-22
Fox----------	0-3	5.1-7.3	1.0-3.0	4.0-20	0
	3-12	5.1-6.5	0.0-0.5	4.0-30	0
	12-31	5.6-7.8	0.0-0.5	4.0-30	0-45
	31-80	7.4-8.4	0.0-0.5	0.0-3.0	5-45
AvA:					
Avonburg--------	0-9	4.5-7.3	1.0-2.0	4.0-8.0	0
	9-35	4.5-5.0	0.0-0.5	12-16	0
	35-58	4.5-5.0	0.0-0.5	8.0-12	0
	58-80	4.5-7.3	0.0-0.5	16-24	0
AvB:					
Avonburg--------	0-8	4.5-7.3	1.0-2.0	4.0-8.0	0
	8-33	4.5-5.0	0.0-0.5	12-16	0
	33-58	4.5-5.0	0.0-0.5	8.0-12	0
	58-80	4.5-7.3	0.0-0.5	16-24	0
BeD:					
Berks-----------	0-8	3.6-6.5	2.0-4.0	5.0-15	0
	8-26	3.6-6.5	0.0-0.5	5.0-10	0
	26-33	3.6-6.5	0.0-0.5	5.0-10	0
	33-35	---	---	---	0
BeE:					
Berks-----------	0-3	3.6-6.5	2.0-4.0	5.0-15	0
	3-24	3.6-6.5	0.0-0.5	5.0-10	0
	24-32	3.6-6.5	0.0-0.5	5.0-10	0
	32-35	---	---	---	0
BgC:					
Berks-----------	0-5	3.6-6.5	2.0-4.0	5.0-15	0
	5-23	3.6-6.5	0.0-0.5	5.0-10	0
	23-33	3.6-6.5	0.0-0.5	5.0-10	0
	33-35	---	---	---	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
BgC:					
Tarhollow-------	0-5	3.6-7.3	1.0-3.0	10-20	0
	5-31	4.5-6.0	0.3-1.0	12-22	0
	31-44	5.1-7.3	0.2-0.5	20-30	0
	44-55	6.6-8.4	0.1-0.3	16-28	0-10
	55-60	---	0.0-0.0	---	0
CaB:					
Cana----------	0-8	5.1-7.3	1.0-3.0	10-20	0
	8-13	4.5-6.0	1.0-3.0	10-20	0
	13-40	4.5-6.0	0.3-1.0	13-20	0
	40-48	3.6-5.0	0.1-0.3	18-30	0
	48-60	---	0.0-0.0	0.0-0.0	0
CaC2:					
Cana----------	0-8	5.1-7.3	1.0-3.0	10-20	0
	8-13	4.5-6.0	1.0-3.0	10-20	0
	13-32	4.5-6.0	0.3-1.0	13-20	0
	32-42	3.6-5.0	0.1-0.3	18-30	0
	42-51	3.6-5.0	0.1-0.3	18-30	0
	51-60	---	---	---	---
CaD2:					
Cana----------	0-6	5.1-7.3	1.0-3.0	10-20	0
	6-13	4.5-6.0	1.0-3.0	10-20	0
	13-42	4.5-6.0	0.3-1.0	13-20	0
	42-51	3.6-5.0	0.1-0.3	18-30	0
	51-60	---	0.0-0.0	---	0
CaE2:					
Cana----------	0-6	5.1-7.3	1.0-3.0	10-20	0
	6-15	4.5-6.0	1.0-3.0	10-20	0
	15-35	4.5-6.0	0.3-1.0	13-20	0
	35-45	3.6-5.0	0.1-0.3	18-30	0
	45-60	---	0.0-0.0	---	0
Cd:					
Carlisle--------	0-56	4.5-7.3	70-99	150-230	---
	56-80	5.6-7.8	0.0-1.0	4.0-30	---
CeD:					
Casco----------	0-7	5.6-7.3	1.0-2.0	3.0-15	0
	7-14	5.6-7.8	0.0-0.5	4.0-30	0-3
	14-60	7.4-8.4	0.0-0.5	0.0-3.0	1-25
Rodman----------	0-7	6.6-7.8	2.0-4.0	5.0-18	0-15
	7-14	6.6-7.8	0.0-2.0	1.0-14	0-25
	14-60	7.4-8.4	0.0-1.0	1.0-6.0	10-45
CgA:					
Celina----------	0-8	5.6-7.3	1.0-3.0	9.0-19	0
	8-16	5.6-7.3	1.0-3.0	9.0-19	0
	16-33	4.5-7.8	0.5-1.0	18-32	0-15
	33-80	7.4-8.4	0.3-0.5	8.0-14	25-45
CgB:					
Celina----------	0-9	5.6-7.3	1.0-3.0	9.0-19	0
	9-15	5.6-7.3	1.0-3.0	9.0-19	0
	15-37	4.5-7.8	0.5-1.0	18-32	0-15
	37-80	7.4-8.4	0.3-0.5	8.0-14	25-45

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
CgB2:					
Celina----------	0-6	5.6-7.3	1.0-3.0	9.0-19	0
	6-34	4.5-7.8	0.5-1.0	18-32	0-15
	34-80	7.4-8.4	0.3-0.5	8.0-14	25-45
ChA:					
Chavies---------	0-10	4.5-7.3	0.5-4.0	10-20	---
	10-70	4.5-7.3	---	---	---
	70-80	4.5-6.0	---	---	---
CmA:					
Cidermill-------	0-8	4.5-7.3	1.0-3.0	10-20	0
	8-30	4.5-6.5	0.3-1.0	10-18	0
	30-43	4.5-6.0	0.2-0.5	8.0-18	0
	43-80	4.5-6.0	0.1-0.3	4.0-10	0
CmB:					
Cidermill-------	0-10	4.5-7.3	1.0-3.0	10-20	0
	10-30	4.5-6.5	0.3-1.0	10-18	0
	30-44	4.5-6.0	0.2-0.5	8.0-18	0
	44-80	4.5-6.0	0.1-0.3	4.0-10	0
Cp:					
Clifty----------	0-10	4.5-6.0	1.0-4.0	5.0-18	---
	10-28	4.5-6.0	---	---	---
	28-80	4.5-6.0	---	---	---
CrA:					
Coolville-------	0-18	3.6-6.5	1.0-3.0	10-20	0
	18-33	3.6-5.5	0.3-1.0	15-24	0
	33-55	3.6-5.5	0.1-0.5	17-35	0
	55-60	---	0.0-0.0	---	0
CrB:					
Coolville-------	0-11	3.6-6.5	1.0-3.0	10-20	0
	11-17	3.6-5.5	0.3-1.0	15-24	0
	17-49	3.6-5.5	0.1-0.5	17-35	0
	49-54	---	0.0-0.0	---	0
CrC2:					
Coolville-------	0-5	3.6-6.5	1.0-3.0	10-20	0
	5-14	3.6-5.5	0.3-1.0	15-24	0
	14-32	3.6-5.5	0.1-0.5	17-35	0
	32-42	4.5-5.5	0.1-0.3	15-35	0
	42-50	---	0.0-0.0	---	0
CvA:					
Crosby----------	0-10	5.1-7.3	1.0-3.0	6.0-21	0
	10-36	5.1-7.3	0.0-0.5	14-28	0
	36-80	7.4-8.4	---	6.0-17	10-40
CvB:					
Crosby----------	0-8	5.1-7.3	1.0-3.0	6.0-21	0
	8-25	5.1-7.3	0.0-0.5	14-28	0
	25-80	7.4-8.4	---	6.0-17	10-40
CwC2:					
Cruze-----------	0-7	3.6-6.0	1.0-3.0	8.0-22	0
	7-23	3.6-5.5	0.3-1.0	8.0-21	0
	23-31	3.6-5.5	0.1-0.5	14-33	0
	31-60	3.6-5.5	0.1-0.3	16-36	0
	60-65	---	0.0-0.0	---	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
CwD:					
Cruze----------	0-7	3.6-6.0	1.0-3.0	8.0-22	0
	7-18	3.6-5.5	0.3-1.0	8.0-21	0
	18-37	3.6-5.5	0.1-0.5	14-33	0
	37-48	3.6-5.5	0.1-0.3	16-36	0
	48-53	---	0.0-0.0	---	0
CwE:					
Cruze----------	0-9	3.6-6.0	1.0-3.0	8.0-22	0
	9-20	3.6-5.5	0.3-1.0	8.0-21	0
	20-37	3.6-5.5	0.1-0.5	14-33	0
	37-48	3.6-5.5	0.1-0.3	16-36	0
	48-53	---	0.0-0.0	---	0
DAM.					
Dam					
EeA:					
Eldean----------	0-13	5.6-7.3	1.0-3.0	8.0-21	0
	13-27	5.6-7.8	0.5-1.0	20-30	0
	27-33	6.6-8.4	0.5-1.0	20-30	10-50
	33-80	7.4-8.4	0.5-1.0	1.0-8.0	40-65
EeB:					
Eldean----------	0-7	5.6-7.3	1.0-3.0	8.0-21	0
	7-30	5.6-7.8	0.5-1.0	20-30	0
	30-36	6.6-8.4	0.5-1.0	20-30	10-50
	36-80	7.4-8.4	0.5-1.0	1.0-8.0	40-65
EeC2:					
Eldean----------	0-6	5.6-7.3	1.0-3.0	8.0-21	0
	6-24	5.6-7.8	0.5-1.0	20-30	0
	24-30	6.6-8.4	0.5-1.0	20-30	10-50
	30-80	7.4-8.4	0.5-1.0	1.0-8.0	40-65
EgA:					
Eldean----------	0-9	5.6-7.3	1.0-3.0	8.0-22	0
	9-27	5.6-7.8	0.3-1.0	20-30	0
	27-32	6.6-8.4	0.1-0.5	20-30	10-50
	32-80	7.4-8.4	0.1-0.3	1.0-8.0	40-65
EgB:					
Eldean----------	0-8	5.6-7.3	1.0-3.0	8.0-22	0
	8-26	5.6-7.8	0.3-1.0	20-30	0
	26-31	6.6-8.4	0.1-0.5	20-30	10-50
	31-80	7.4-8.4	0.1-0.3	1.0-8.0	40-65
EgC2:					
Eldean----------	0-3	5.6-7.3	1.0-3.0	8.0-22	0
	3-27	5.6-7.8	0.3-1.0	20-30	0
	27-32	6.6-8.4	0.1-0.5	20-30	10-50
	32-80	7.4-8.4	0.1-0.3	1.0-8.0	40-65
ErD:					
Ernest----------	0-8	4.5-6.0	2.0-4.0	18-25	0
	8-31	4.5-5.5	0.0-0.5	14-25	0
	31-62	4.5-5.5	0.0-0.5	12-22	0
	62-70	4.5-5.5	0.0-0.5	12-22	0
EuA:					
Euclid----------	0-10	4.5-7.3	2.0-3.0	10-20	0
	10-47	4.5-6.0	0.5-1.0	9.0-18	0
	47-80	5.6-7.8	0.1-0.5	7.0-16	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
FhA:					
Fitchville------	0-8	4.5-7.3	2.0-3.0	14-22	0
	8-56	4.5-7.3	0.5-1.0	10-25	0
	56-80	5.6-7.8	0.1-0.5	0.0-0.0	0-5
FhB:					
Fitchville------	0-8	4.5-7.3	2.0-3.0	14-22	0
	8-56	4.5-7.3	0.5-1.0	10-25	0
	56-80	5.6-7.8	0.1-0.5	0.0-0.0	0-5
FnB:					
Fox----------	0-9	5.1-7.3	1.0-3.0	4.0-20	0
	9-28	5.1-6.5	0.0-0.5	4.0-30	0
	28-30	5.6-7.8	0.0-0.5	4.0-30	0-45
	30-60	7.4-8.4	0.0-0.5	0.0-3.0	5-45
FnC2:					
Fox----------	0-9	5.1-7.3	1.0-3.0	4.0-20	0
	9-18	5.1-6.5	0.0-0.5	4.0-30	0
	18-34	5.6-7.8	0.0-0.5	4.0-30	0-45
	34-80	7.4-8.4	0.0-0.5	0.0-3.0	5-45
Ge:					
Gessie----------	0-10	7.4-8.4	1.0-2.0	9.0-21	10-20
	10-80	7.4-8.4	0.0-0.5	7.0-18	5-30
Gf:					
Gessie----------	0-8	7.4-8.4	1.0-2.0	9.0-21	10-20
	8-80	7.4-8.4	0.0-0.5	7.0-18	5-30
GgC2:					
Gilpin----------	0-9	3.6-5.5	0.5-4.0	5.0-15	---
	9-23	3.6-5.5	---	---	---
	23-32	3.6-5.5	---	---	---
	32-35	---	---	---	---
GhC:					
Gilpin----------	0-6	3.6-5.5	0.5-4.0	5.0-15	---
	6-27	3.6-5.5	---	---	---
	27-33	3.6-5.5	---	---	---
	33-35	---	---	---	---
Tilsit----------	0-5	3.6-5.5	1.0-3.0	10-20	---
	5-24	3.6-5.5	0.3-1.0	8.0-15	---
	24-44	3.6-5.5	---	---	---
	44-65	3.6-5.5	---	---	---
	65-70	---	---	---	---
GnA:					
Glenford--------	0-10	4.5-7.3	1.0-3.0	10-18	0
	10-45	4.5-6.0	0.5-1.0	10-20	0
	45-52	5.6-7.3	0.3-0.5	10-20	0
	52-80	5.6-7.8	0.1-0.3	6.0-18	0-5
GnB:					
Glenford--------	0-9	4.5-7.3	1.0-3.0	10-18	0
	9-17	4.5-6.0	0.5-1.0	10-20	0
	17-47	5.6-7.3	0.3-0.5	10-20	0
	47-80	5.6-7.8	0.1-0.3	6.0-18	0-5

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
HaB:					
Haubstadt-------	0-9	4.5-6.0	1.0-3.0	9.0-22	0
	9-29	4.5-5.5	0.5-1.0	8.0-21	0
	29-60	4.5-5.5	0.3-0.5	10-21	0
	60-80	4.5-7.3	0.3-0.5	7.0-18	0
HaC2:					
Haubstadt-------	0-8	4.5-6.0	1.0-3.0	9.0-22	0
	8-24	4.5-5.5	0.5-1.0	8.0-21	0
	24-40	4.5-5.5	0.3-0.5	10-21	0
	40-80	4.5-7.3	0.3-0.5	7.0-18	0
Hd:					
Haymond---------	0-9	5.6-7.8	1.0-3.0	4.0-15	0
	9-62	5.6-7.8	0.5-2.0	4.0-15	0
	62-80	6.1-7.8	0.0-1.0	4.0-15	0
HeA:					
Henshaw---------	0-8	5.1-7.3	0.5-2.0	6.0-14	0
	8-42	5.1-6.5	0.0-0.5	10-18	0
	42-62	5.6-8.4	0.0-0.5	10-30	0-30
HkD2:					
Hickory---------	0-5	4.5-7.3	1.0-2.0	14-19	0
	5-42	4.5-6.0	0.0-0.5	16-22	0
	42-80	5.1-8.4	0.0-0.2	9.0-19	0-15
HkE2:					
Hickory---------	0-13	4.5-7.3	1.0-2.0	14-19	0
	13-46	4.5-6.0	0.0-0.5	16-22	0
	46-80	5.1-8.4	0.0-0.2	9.0-19	0-15
Ht:					
Huntington------	0-12	5.6-7.8	3.0-6.0	12-26	---
	12-55	5.6-7.8	---	---	---
	55-80	5.6-7.8	---	---	---
KaA:					
Kendallville----	0-8	5.6-7.3	1.0-3.0	8.0-20	0
	8-36	4.5-7.8	0.2-0.5	10-28	0
	36-80	7.4-8.4	0.1-0.3	7.0-18	20-45
KaB:					
Kendallville----	0-6	5.6-7.3	1.0-3.0	8.0-20	0
	6-34	4.5-7.8	0.2-0.5	10-28	0
	34-80	7.4-8.4	0.1-0.3	7.0-18	20-45
KeC2:					
Kendallville----	0-9	5.6-7.3	1.0-3.0	4.0-18	0
	9-39	4.5-7.8	0.1-0.5	10-28	0
	39-80	7.4-8.4	0.1-0.3	7.0-18	20-45
Eldean----------	0-6	5.6-7.3	1.0-3.0	8.0-21	0
	6-36	5.6-7.8	0.5-1.0	20-30	0
	36-80	7.4-8.4	0.5-1.0	1.0-8.0	40-65
KeD2:					
Kendallville----	0-5	5.6-7.3	1.0-3.0	4.0-18	0
	5-36	4.5-7.8	0.1-0.5	10-28	0
	36-80	7.4-8.4	0.1-0.3	7.0-18	20-45

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
KeD2:					
Eldean----------	0-3	5.6-7.3	1.0-3.0	8.0-21	0
	3-35	5.6-7.8	0.5-1.0	20-30	0
	35-80	7.4-8.4	0.5-1.0	1.0-8.0	40-65
KeE2:					
Kendallville----	0-3	5.6-7.3	1.0-3.0	4.0-18	0
	3-35	4.5-7.8	0.1-0.5	10-28	0
	35-80	7.4-8.4	0.1-0.3	7.0-18	20-45
Eldean----------	0-2	5.6-7.3	1.0-3.0	8.0-21	0
	2-22	5.6-7.8	0.5-1.0	20-30	0
	22-80	7.4-8.4	0.5-1.0	1.0-8.0	40-65
Kn:					
Kinn----------	0-20	6.6-8.4	1.0-3.0	12-22	1-10
	20-38	6.1-7.8	1.0-4.0	18-26	1-7
	38-50	6.1-7.8	0.1-0.5	17-23	2-8
	50-80	6.6-8.4	0.1-0.5	8.0-25	2-30
Ko:					
Kokomo----------	0-12	6.1-7.3	3.0-6.0	14-29	0
	12-42	6.1-7.3	1.0-2.0	16-28	0
	42-64	7.9-8.4	0.2-1.0	6.0-17	15-35
Kp:					
Kokomo----------	0-18	6.1-7.3	3.0-6.0	16-33	0
	18-42	6.1-7.3	1.0-2.0	16-28	0
	42-80	7.9-8.4	0.2-1.0	6.0-17	15-35
LfC2:					
Latham----------	0-8	3.6-6.5	1.0-3.0	10-20	0
	8-35	3.6-5.0	0.2-1.0	15-30	0
	35-40	---	0.0-0.0	---	0
LfD2:					
Latham----------	0-4	3.6-6.5	1.0-3.0	10-20	0
	4-31	3.6-5.0	0.2-1.0	15-30	0
	31-35	---	0.0-0.0	---	0
LfE:					
Latham----------	0-5	3.6-6.5	1.0-3.0	10-20	0
	5-38	3.6-5.0	0.2-1.0	15-30	0
	38-40	---	0.0-0.0	---	0
LgD:					
Latham----------	0-8	3.6-6.5	1.0-3.0	10-20	0
	8-34	3.6-5.0	0.2-1.0	15-30	0
	34-40	---	0.0-0.0	---	0
Wharton---------	0-5	4.5-5.5	0.5-5.0	5.0-16	0
	5-48	4.5-5.5	0.5-2.0	3.0-15	0
	48-66	4.5-5.5	0.0-0.5	5.0-20	0
LrB:					
Libre----------	0-10	4.5-6.5	0.5-2.0	8.0-12	---
	10-33	4.5-6.0	0.1-0.3	10-16	---
	33-53	4.5-6.0	0.0-0.1	6.0-14	---
	53-80	4.5-6.0	0.0-0.1	8.0-18	---

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
LrC2:					
Libre----------	0-6	4.5-6.5	0.5-2.0	8.0-12	---
	6-26	4.5-6.0	0.1-0.3	10-16	---
	26-56	4.5-6.0	0.0-0.1	6.0-14	---
	56-80	4.5-6.0	0.0-0.1	8.0-18	---
MaB:					
Markland--------	0-11	5.1-7.3	1.0-5.0	14-22	0
	11-37	4.5-7.8	0.5-1.0	14-24	0-5
	37-80	7.4-8.4	0.5-1.0	8.0-16	20-45
MbC2:					
Markland--------	0-6	5.1-7.3	1.0-5.0	16-24	0
	6-36	4.5-7.8	0.5-1.0	14-24	0-5
	36-80	7.4-8.4	0.5-1.0	8.0-16	20-45
MbD2:					
Markland--------	0-6	5.1-7.3	1.0-5.0	16-24	0
	6-28	4.5-7.8	0.5-1.0	14-24	0-5
	28-80	7.4-8.4	0.5-1.0	8.0-16	20-45
MbE2:					
Markland--------	0-3	5.1-7.3	1.0-5.0	16-24	0
	3-22	4.5-7.8	0.5-1.0	14-24	0-5
	22-80	7.4-8.4	0.5-1.0	8.0-16	20-45
McA:					
Martinsville----	0-11	5.6-7.3	1.0-3.0	8.0-24	0
	11-26	5.1-6.0	0.5-1.0	8.0-20	0
	26-55	5.1-6.0	0.5-1.0	8.0-20	0
	55-80	5.1-7.3	0.0-0.5	6.0-16	0
MdA:					
McGary----------	0-6	5.6-7.3	1.0-3.0	5.0-14	0
	6-42	4.5-7.8	0.0-1.0	10-24	0-15
	42-80	7.4-8.4	0.0-0.5	10-18	15-40
MdB:					
McGary----------	0-10	5.6-7.3	1.0-3.0	5.0-14	0
	10-42	4.5-7.8	0.0-1.0	10-24	0-15
	42-80	7.4-8.4	0.0-0.5	10-18	15-40
MeC2:					
Mentor----------	0-6	4.5-6.0	1.0-3.0	8.0-20	0
	6-40	4.5-6.5	0.2-0.5	8.0-20	0
	40-80	5.1-7.8	0.1-0.3	5.0-18	0-5
MeD2:					
Mentor----------	0-3	4.5-6.0	1.0-3.0	8.0-20	0
	3-40	4.5-6.5	0.2-0.5	8.0-20	0
	40-80	5.1-7.8	0.1-0.3	5.0-18	0-5
MfA:					
Mentor----------	0-12	4.5-6.0	2.0-3.0	8.0-20	0
	12-53	4.5-6.5	0.5-1.0	8.0-20	0
	53-80	5.1-7.8	0.1-0.5	5.0-18	0-5
MgA:					
Mentor----------	0-10	4.5-6.5	1.0-3.0	8.0-20	0
	10-53	4.5-6.5	0.3-1.0	8.0-20	0
	53-59	5.1-7.3	0.2-0.5	6.0-18	0
	59-80	5.6-7.8	0.1-0.3	2.0-10	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
MgB:					
Mentor----------	0-10	4.5-6.5	1.0-3.0	8.0-20	0
	10-42	4.5-6.5	0.3-1.0	8.0-20	0
	42-57	5.1-7.3	0.2-0.5	6.0-18	0
	57-80	5.6-7.8	0.1-0.3	2.0-10	0
MhB:					
Miamian---------	0-8	5.6-7.3	1.0-3.0	10-18	0
	8-25	5.1-7.3	0.5-1.0	12-22	0
	25-80	7.4-8.4	0.1-0.5	7.0-16	25-45
MhB2:					
Miamian---------	0-5	5.6-7.3	1.0-3.0	10-18	0
	5-25	5.1-7.8	0.3-1.0	17-28	0-15
	25-80	7.4-8.4	0.1-0.5	7.0-16	25-45
MhC2:					
Miamian---------	0-6	5.6-7.3	1.0-3.0	10-18	0
	6-30	5.1-7.8	0.3-1.0	17-28	0-15
	30-80	7.4-8.4	0.1-0.5	7.0-16	25-45
MhD2:					
Miamian---------	0-4	5.6-7.3	1.0-3.0	10-18	0
	4-22	5.1-7.8	0.3-1.0	17-28	0-15
	22-80	7.4-8.4	0.1-0.5	7.0-16	25-45
MhE:					
Miamian---------	0-3	5.6-7.3	1.0-3.0	10-18	0
	3-7	5.1-7.3	0.5-1.0	12-22	0
	7-37	5.1-7.8	0.3-1.0	17-28	0-15
	37-80	7.4-8.4	0.1-0.5	7.0-16	25-45
MmC2:					
Miamian---------	0-9	5.6-7.3	1.0-3.0	10-20	0
	9-23	5.1-7.3	0.2-0.5	17-25	0
	23-31	5.1-7.8	0.2-0.5	16-22	0-10
	31-56	7.4-8.4	0.1-0.3	12-20	25-40
	56-60	---	0.0-0.0	---	0
MmD2:					
Miamian---------	0-3	5.6-7.3	1.0-3.0	10-20	0
	3-23	5.1-7.3	0.2-0.5	17-25	0
	23-26	5.1-7.8	0.2-0.5	16-22	0-10
	26-50	7.4-8.4	0.1-0.3	12-20	25-40
	50-60	---	0.0-0.0	---	0
MnB:					
Miamian---------	0-9	5.6-7.3	1.0-3.0	10-18	0
	9-13	5.1-7.3	0.5-1.0	12-22	0
	13-32	5.1-7.8	0.3-1.0	17-28	0-15
	32-80	7.4-8.4	0.1-0.5	7.0-16	25-45
Lewisburg-------	0-7	5.6-7.3	1.0-3.0	8.0-19	0
	7-18	5.6-8.4	0.5-1.0	14-28	0-10
	18-80	7.4-8.4	0.1-0.5	8.0-16	30-47
MoB:					
Milton----------	0-7	4.5-7.3	1.0-3.0	10-22	0
	7-17	4.5-7.8	0.3-1.0	16-30	0
	17-25	6.1-8.4	0.1-0.3	10-27	5-15
	25-30	---	0.0-0.0	---	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
MoC2:					
Milton----------	0-5	4.5-7.3	1.0-3.0	10-22	0
	5-12	4.5-7.8	0.3-1.0	16-30	0
	12-22	6.1-8.4	0.1-0.3	10-27	5-15
	22-25	---	0.0-0.0	---	0
MoE2:					
Milton----------	0-4	4.5-7.3	1.0-3.0	10-22	0
	4-12	4.5-7.8	0.3-1.0	16-30	0
	12-22	6.1-8.4	0.1-0.3	10-27	5-15
	22-25	---	0.0-0.0	---	0
NeC2:					
Negley----------	0-6	4.5-7.3	1.0-3.0	6.0-22	0
	6-15	4.5-6.5	0.2-0.5	7.0-21	0
	15-80	4.5-6.0	0.1-0.3	---	0
NeD2:					
Negley----------	0-8	4.5-7.3	1.0-3.0	6.0-22	0
	8-18	4.5-6.5	0.2-0.5	7.0-21	0
	18-80	4.5-6.0	0.1-0.3	---	0
NeE2:					
Negley----------	0-7	4.5-7.3	1.0-3.0	6.0-22	0
	7-38	4.5-6.5	0.2-0.5	7.0-21	0
	38-80	4.5-6.0	0.1-0.3	---	0
NnA:					
Nineveh---------	0-15	6.6-7.3	2.0-4.0	11-23	0
	15-22	6.1-7.3	0.5-1.0	11-23	0
	22-33	6.6-7.8	0.0-1.0	9.0-22	0-5
	33-37	7.4-8.4	0.0-0.5	9.0-24	5-20
	37-80	7.4-8.4	0.0-0.2	0.0-3.0	5-30
NnB:					
Nineveh---------	0-14	6.6-7.3	2.0-4.0	11-23	0
	14-22	6.1-7.3	0.5-1.0	11-23	0
	22-32	6.6-7.8	0.0-1.0	9.0-22	0-5
	32-35	7.4-8.4	0.0-0.5	9.0-24	5-20
	35-80	7.4-8.4	0.0-0.2	0.0-3.0	5-30
ObA:					
Ockley----------	0-11	5.6-7.3	1.0-3.0	3.0-15	0
	11-20	4.5-6.5	0.5-1.0	5.0-15	0
	20-50	5.1-7.3	0.5-1.0	2.0-15	0
	50-80	7.4-8.4	0.0-0.5	1.0-3.0	20-50
ObB:					
Ockley----------	0-10	5.6-7.3	1.0-3.0	3.0-15	0
	10-19	4.5-6.5	0.5-1.0	5.0-15	0
	19-55	5.1-7.3	0.5-1.0	2.0-15	0
	55-80	7.4-8.4	0.0-0.5	1.0-3.0	20-50
OmB:					
Omulga----------	0-7	4.5-7.3	0.5-2.0	10-20	0
	7-28	3.6-5.5	0.3-1.0	10-18	0
	28-60	3.6-5.5	0.1-0.5	8.0-16	0
	60-80	4.5-6.0	0.1-0.5	11-18	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
OmC2:					
Omulga----------	0-5	4.5-7.3	0.5-2.0	10-20	0
	5-24	3.6-5.5	0.3-1.0	10-18	0
	24-40	3.6-5.5	0.1-0.5	8.0-16	0
	40-80	4.5-6.0	0.1-0.5	11-18	0
Or:					
Orrville--------	0-8	5.1-7.3	2.0-4.0	10-20	0
	8-35	5.1-6.5	0.5-1.0	10-16	0
	35-80	5.1-7.3	0.1-0.3	5.0-12	0
OwB:					
Otwell----------	0-7	4.5-7.3	0.5-2.0	8.0-21	0
	7-27	4.5-5.5	0.0-0.5	8.0-22	0
	27-50	4.5-5.5	0.0-0.2	7.0-19	0
	50-80	5.1-6.5	---	8.0-18	0
Pc:					
Patton----------	0-10	6.1-7.3	4.0-6.0	12-26	---
	10-47	6.1-7.3	---	---	---
	47-80	7.4-8.4	---	---	---
Pg:					
Peoga----------	0-9	4.5-7.3	1.0-3.0	4.0-10	0
	9-65	3.5-5.5	0.0-0.5	10-15	0
	65-80	5.1-7.3	0.0-0.5	10-15	0
PkA:					
Pike----------	0-8	5.1-7.3	0.5-2.0	8.0-21	0
	8-46	4.5-6.5	0.0-0.5	8.0-22	0
	46-80	4.5-6.0	---	---	0
PkB:					
Pike----------	0-10	5.1-7.3	0.5-2.0	8.0-21	0
	10-44	4.5-6.5	0.0-0.5	8.0-22	0
	44-80	4.5-6.0	---	---	0
Pn.					
Pits, gravel					
Po.					
Pits, quarry					
Pp:					
Pope----------	0-9	3.6-5.5	1.0-4.0	5.0-18	---
	9-40	3.6-5.5	---	---	---
	40-60	3.6-5.5	---	---	---
PtB:					
Princeton-------	0-10	5.6-7.3	0.5-2.0	5.0-16	0
	10-19	5.1-6.5	0.0-1.0	7.0-17	0
	19-80	5.1-7.3	0.0-0.5	3.0-12	0
PtC:					
Princeton-------	0-6	5.6-7.3	0.5-2.0	5.0-16	0
	6-17	5.1-6.5	0.0-1.0	7.0-17	0
	17-80	5.1-7.3	0.0-0.5	3.0-12	0
PtD:					
Princeton-------	0-10	5.6-7.3	0.5-2.0	5.0-16	0
	10-30	5.1-6.5	0.0-1.0	7.0-17	0
	30-80	5.1-7.3	0.0-0.5	3.0-12	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
RbA:					
Rainsboro-------	0-10	4.5-7.3	1.0-3.0	10-22	0
	10-36	4.5-6.0	0.5-1.0	10-20	0
	36-65	4.5-5.5	0.2-0.5	8.0-18	0
	65-80	5.1-7.3	0.1-0.3	8.0-18	0
RbB:					
Rainsboro-------	0-8	4.5-7.3	1.0-3.0	10-22	0
	8-34	4.5-6.0	0.5-1.0	10-20	0
	34-60	4.5-5.5	0.2-0.5	8.0-18	0
	60-80	5.1-7.3	0.1-0.3	8.0-18	0
RbC2:					
Rainsboro-------	0-6	4.5-7.3	1.0-3.0	10-22	0
	6-28	4.5-6.0	0.5-1.0	10-20	0
	28-60	4.5-5.5	0.3-0.5	10-20	0
	60-80	5.1-7.3	0.1-0.3	8.0-18	0
RcF:					
Rigley----------	0-7	4.5-7.3	0.5-3.0	3.0-12	---
	7-44	3.6-5.5	---	---	---
	44-60	3.6-5.5	---	---	---
Rock outcrop.					
RdD2:					
Rodman----------	0-7	6.6-7.8	2.0-4.0	5.0-18	0-15
	7-15	6.6-7.8	0.0-2.0	1.0-14	0-25
	15-80	7.4-8.4	0.0-1.0	1.0-6.0	10-45
RdE2:					
Rodman----------	0-2	6.6-7.8	2.0-4.0	5.0-18	0-15
	2-15	6.6-7.8	0.0-2.0	1.0-14	0-25
	15-80	7.4-8.4	0.0-1.0	1.0-6.0	10-45
Rn:					
Ross----------	0-8	6.1-7.8	3.0-5.0	12-26	0
	8-29	6.1-7.8	3.0-5.0	12-26	0
	29-40	6.1-8.4	1.0-3.0	8.0-20	0-20
	40-80	6.1-8.4	0.5-2.0	2.0-15	0-30
Ro:					
Rossburg--------	0-10	6.1-7.8	4.0-8.0	9.0-24	0
	10-17	6.1-7.8	4.0-8.0	9.0-24	0
	17-47	6.1-7.8	0.5-2.0	7.0-16	0-10
	47-80	6.6-8.4	0.1-0.5	2.0-9.0	10-30
RpA:					
Rossmoyne-------	0-9	4.5-7.3	1.0-3.0	9.0-22	0
	9-26	4.5-5.5	0.4-1.0	9.0-21	0
	26-60	4.5-5.5	0.1-0.4	10-21	0
	60-80	5.6-8.4	0.1-0.3	7.0-27	0-40
RpB:					
Rossmoyne-------	0-11	4.5-7.3	1.0-3.0	9.0-22	0
	11-29	4.5-5.5	0.4-1.0	9.0-21	0
	29-65	4.5-5.5	0.1-0.4	10-21	0
	65-80	5.6-8.4	0.1-0.3	7.0-27	0-40

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
RpC2:					
Rossmoyne-------	0-7	4.5-7.3	1.0-3.0	9.0-22	0
	7-28	4.5-5.5	0.4-1.0	9.0-21	0
	28-60	4.5-5.5	0.1-0.4	10-21	0
	60-80	5.6-8.4	0.1-0.3	7.0-27	0-40
RsB:					
Rossmoyne-------	0-5	4.5-7.3	1.0-3.0	9.0-22	0
	5-23	4.5-5.5	0.4-1.0	9.0-21	0
	23-60	4.5-5.5	0.1-0.4	10-21	0
	60-80	5.6-8.4	0.1-0.3	7.0-27	0-40
Cana----------	0-5	5.1-7.3	1.0-3.0	10-20	0
	5-14	4.5-6.0	1.0-3.0	10-20	0
	14-42	4.5-6.0	0.3-1.0	13-20	0
	42-51	3.6-5.0	0.1-0.3	18-30	0
	51-60	---	0.0-0.0	---	0
RsC2:					
Rossmoyne-------	0-7	4.5-7.3	1.0-3.0	9.0-22	0
	7-22	4.5-5.5	0.4-1.0	9.0-21	0
	22-60	4.5-5.5	0.1-0.4	10-21	0
	60-80	4.5-5.5	0.1-0.4	10-21	0
Cana----------	0-7	5.1-7.3	1.0-3.0	10-20	0
	7-16	4.5-6.0	1.0-3.0	10-20	0
	16-42	4.5-6.0	0.3-1.0	13-20	0
	42-48	3.6-5.0	0.1-0.3	18-30	0
	48-60	---	0.0-0.0	---	0
SfD:					
Shelocta--------	0-4	4.5-5.5	0.5-5.0	5.0-16	0
	4-50	4.5-5.5	0.5-2.0	3.0-15	0
	50-80	4.5-5.5	0.0-0.5	5.0-20	0
SgF:					
Shelocta--------	0-10	4.5-5.5	0.5-5.0	5.0-16	0
	10-55	4.5-5.5	0.5-2.0	3.0-15	0
	55-80	4.5-5.5	0.0-0.5	5.0-20	0
Brownsville-----	0-5	3.6-6.5	1.0-3.0	8.0-20	0
	5-32	3.6-5.5	0.3-1.0	4.0-10	0
	32-42	3.6-6.0	0.1-0.3	4.0-10	0
	42-45	---	0.0-0.0	---	0
ShE:					
Shelocta--------	0-7	4.5-5.5	0.5-5.0	5.0-16	0
	7-55	4.5-5.5	0.5-2.0	3.0-15	0
	55-80	4.5-5.5	0.0-0.5	5.0-20	0
Cruze----------	0-6	3.6-6.0	1.0-3.0	8.0-22	0
	6-28	3.6-5.5	0.3-1.0	8.0-21	0
	28-37	3.6-5.5	0.1-0.5	14-33	0
	37-48	3.6-5.5	0.1-0.3	16-36	0
	48-53	---	0.0-0.0	---	0
Weikert---------	0-6	4.5-6.0	1.0-4.0	6.0-20	0
	6-12	4.5-6.0	0.0-0.5	6.0-15	0
	12-15	---	---	---	---

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
SkE:					
Shelocta	0-5	4.5-5.5	0.5-5.0	5.0-16	0
	5-48	4.5-5.5	0.5-2.0	3.0-15	0
	48-62	4.5-5.5	0.0-0.5	5.0-20	0
Rigley	0-6	4.5-7.3	0.5-3.0	3.0-12	---
	6-50	3.6-5.5	---	---	---
	50-60	3.6-5.5	---	---	---
Sp:					
Skidmore	0-10	5.6-7.8	0.5-2.0	5.0-18	---
	10-25	5.6-7.8	0.5-2.0	---	---
	25-80	5.6-7.8	---	---	---
St:					
Sloan	0-16	6.1-7.8	3.0-6.0	19-29	0
	16-53	6.1-8.4	0.5-1.0	10-20	0-20
	53-80	6.6-8.4	0.1-0.5	4.0-18	5-40
SuB:					
Spargus	0-10	4.5-6.5	0.5-3.0	5.0-18	---
	10-45	4.5-6.0	0.1-0.7	6.0-18	---
	45-80	4.5-6.0	0.0-0.5	6.0-18	---
Sv:					
Stonelick	0-8	7.4-8.4	1.0-3.0	6.0-19	2-15
	8-80	7.4-8.4	0.3-1.0	2.0-11	10-40
Sw:					
Stonelick	0-6	7.4-8.4	0.5-2.0	4.0-15	2-15
	6-80	7.4-8.4	0.3-1.0	2.0-11	10-40
TbA:					
Taggart	0-11	4.5-7.3	1.0-3.0	6.0-18	0
	11-33	4.5-5.5	0.5-2.0	11-25	0
	33-80	4.5-5.5	0.0-1.0	8.0-20	0
ThC3:					
Thrifton	0-6	7.4-8.4	0.5-2.0	14-20	2-10
	6-14	7.4-8.4	0.1-0.5	12-22	10-35
	14-80	7.4-8.4	0.0-0.1	7.0-16	25-45
ThD3:					
Thrifton	0-8	7.4-8.4	0.5-2.0	14-20	2-10
	8-14	7.4-8.4	0.1-0.5	12-22	10-35
	14-80	7.4-8.4	0.0-0.1	7.0-16	25-45
ThE3:					
Thrifton	0-5	7.4-8.4	0.5-2.0	14-20	2-10
	5-12	7.4-8.4	0.1-0.5	12-22	10-35
	12-80	7.4-8.4	0.0-0.1	7.0-16	25-45
TnA:					
Tilsit	0-9	3.6-5.5	1.0-3.0	10-20	---
	9-23	3.6-5.5	0.3-1.0	8.0-15	---
	23-43	3.6-5.5	---	---	---
	43-50	3.6-5.5	---	---	---
	50-55	---	---	---	---
To:					
Tioga	0-8	5.1-7.3	2.0-6.0	12-28	0
	8-32	5.1-7.3	0.0-1.0	3.0-15	0
	32-80	5.6-7.8	0.0-1.0	3.0-15	0

Table 24.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
TyA:					
Tyler----------	0-14	3.6-6.5	2.0-4.0	10-24	0
	14-18	3.6-5.5	0.5-1.0	8.0-20	0
	18-59	3.6-5.5	0.2-0.5	7.0-20	0
	59-80	4.5-5.5	0.1-0.3	5.0-18	0
Ud.					
Udorthents					
W.					
Water					
WcA:					
Warsaw----------	0-12	5.6-7.3	2.0-5.0	10-25	0
	12-25	5.1-6.5	0.5-2.0	7.0-22	0
	25-28	6.1-8.4	0.5-2.0	9.0-22	0-10
	28-80	7.9-8.4	0.0-1.0	1.0-7.0	15-25
Wk:					
Westland--------	0-13	6.1-7.3	2.0-6.0	15-30	0
	13-39	6.1-7.3	0.5-2.0	9.0-25	0
	39-57	6.6-7.8	0.5-2.0	3.0-22	0-10
	57-80	7.4-8.4	0.2-1.0	1.0-9.0	5-35
WtB:					
Wyatt----------	0-10	4.5-7.3	1.0-3.0	12-20	0
	10-48	4.5-6.5	0.3-1.0	20-30	0
	48-80	5.6-8.4	0.1-0.3	20-35	0-10
WyC2:					
Wyatt----------	0-8	4.5-7.3	0.5-2.0	14-24	0
	8-50	4.5-6.5	0.3-1.0	20-30	0
	50-80	5.6-8.4	0.1-0.3	20-35	0-10
WyD2:					
Wyatt----------	0-6	4.5-7.3	0.5-2.0	14-24	0
	6-35	4.5-6.5	0.3-1.0	20-30	0
	35-80	5.6-8.4	0.1-0.3	20-35	0-10

Table 25.--Water Features

(Depths of layers are in feet. 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	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
Aa:										
Adrian----------	A/D									
		January	>0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	---
		February	>0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	---
		March	>0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	---
		April	>0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	---
		May	>0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	---
		November	>0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	---
		December	>0.0	>6.0	Apparent	0.0-1.0	Very long	Frequent	---	---
AcC2:										
Alexandria------	C									
		January	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		February	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		March	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		April	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		May	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		December	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
AcD2:										
Alexandria------	C									
		January	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		February	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		March	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		April	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		May	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		December	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
AcE2:										
Alexandria------	C									
		January	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		February	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		March	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		April	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		May	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		December	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
AeE2:										
Alexandria------	C									
		January	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		February	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		March	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		April	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		May	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
		December	3.0-5.0	4.0-7.0	Perched	---	---	---	---	---
Fox----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
AvA:										
Avonburg--------	C									
		January	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		February	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		March	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		April	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		December	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
AvB:										
Avonburg--------	C									
		January	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		February	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		March	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		April	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
		December	0.5-1.5	1.5-3.5	Perched	---	---	---	---	---
BeD:										
Berks----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
BeE:										
Berks----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
BgC:										
Berks----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Tarhollow-------	C									
		January	2.0-3.5	3.0-6.0	Perched	---	---	---	---	---
		February	2.0-3.5	3.0-6.0	Perched	---	---	---	---	---
		March	2.0-3.5	3.0-6.0	Perched	---	---	---	---	---
		April	2.0-3.5	3.0-6.0	Perched	---	---	---	---	---
		December	2.0-3.5	3.0-6.0	Perched	---	---	---	---	---
CaB:										
Cana----------	C									
		January	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
CaC2:										
Cana----------	C									
		January	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
CaD2:										
Cana----------	C									
		January	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
CaE2:										
Cana----------	C									
		January	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
Cd:										
Carlisle--------	A/D									
		January	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		February	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		March	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		April	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		May	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		June	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		September	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		October	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		November	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
		December	>0.0	>6.0	Apparent	0.0-0.5	Very long	Frequent	---	---
CeD:										
Casco----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Rodman----------	A									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
CgA:										
Celina----------	C									
		January	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		February	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		March	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		April	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
CgB:										
Celina----------	C									
		January	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		February	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		March	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		April	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
CgB2:										
Celina----------	C									
		January	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		February	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		March	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
		April	1.5-3.0	1.5-3.5	Perched	---	---	---	---	---
ChA:										
Chavies---------	B									
		January	---	---	---	---	---	---	Very brief	Rare
		February	---	---	---	---	---	---	Very brief	Rare
		March	---	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	---	Very brief	Rare
		November	---	---	---	---	---	---	Very brief	Rare
		December	---	---	---	---	---	---	Very brief	Rare
CmA:										
Cidermill-------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
CmB:										
Cidermill-------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
Cp:										
Clifty----------	B									
		January	---	---	---	---	---	---	Brief	Occasional
		February	---	---	---	---	---	---	Brief	Occasional
		March	---	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	---	Brief	Occasional
CrA:										
Coolville-------	C									
		January	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		February	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		March	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		April	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
CrB:										
Coolville-------	C									
		January	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		February	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		March	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		April	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
CrC2:										
Coolville-------	C									
		January	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		February	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		March	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
		April	1.5-3.0	2.0-4.0	Perched	---	---	---	---	---
CvA:										
Crosby----------	C									
		January	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
		February	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
		March	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
		April	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
CvB:										
Crosby----------	C									
		January	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
		February	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
		March	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
		April	0.5-1.5	1.0-3.0	Perched	---	---	---	---	---
CwC2:										
Cruze-----------	C									
		January	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		February	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		March	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		April	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
CwD:										
Cruze-----------	C									
		January	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		February	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		March	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		April	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
CwE:										
Cruze-----------	C									
		January	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		February	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		March	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		April	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
DAM:										
Dam.										
EeA:										
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
EeB:										
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
EeC2:										
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
EgA:										
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
EgB:										
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
EgC2:										
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
ErD:										
Ernest----------	C									
		January	1.5-3.0	2.5-5.0	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-5.0	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-5.0	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-5.0	Perched	---	---	---	---	---
		December	1.5-3.0	2.5-5.0	Perched	---	---	---	---	---
EuA:										
Euclid----------	C									
		January	1.0-2.5	>6.0	Apparent	---	---	---	Extremely brief	Rare
		February	1.0-2.5	>6.0	Apparent	---	---	---	Extremely brief	Rare
		March	1.0-2.5	>6.0	Apparent	---	---	---	Extremely brief	Rare
		April	1.0-2.5	>6.0	Apparent	---	---	---	Extremely brief	Rare
		May	1.0-2.5	>6.0	Apparent	---	---	---	---	---
		June	1.0-2.5	>6.0	Apparent	---	---	---	---	---
		November	1.0-2.5	>6.0	Apparent	---	---	---	---	---
		December	1.0-2.5	>6.0	Apparent	---	---	---	Extremely brief	Rare
FhA:										
Fitchville------	C									
		January	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		February	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		March	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		April	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		May	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		November	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		December	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
FhB:										
Fitchville------	C									
		January	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		February	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		March	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		April	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		May	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		November	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
		December	1.0-2.5	2.5-5.0	Perched	---	---	---	---	---
FnB:										
Fox----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
FnC2:										
Fox----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Ge:										
Gessie----------	B									
		January	---	---	---	---	---	---	Brief	Occasional
		February	---	---	---	---	---	---	Brief	Occasional
		March	---	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	---	Brief	Occasional
		October	---	---	---	---	---	---	Brief	Occasional
		November	---	---	---	---	---	---	Brief	Occasional
		December	---	---	---	---	---	---	Brief	Occasional
Gf:										
Gessie----------	B									
		January	---	---	---	---	---	---	Brief	Frequent
		February	---	---	---	---	---	---	Brief	Frequent
		March	---	---	---	---	---	---	Brief	Frequent
		April	---	---	---	---	---	---	Brief	Frequent
		May	---	---	---	---	---	---	Brief	Frequent
		October	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent
GgC2:										
Gilpin----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
GhC:										
Gilpin----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Tilsit----------	C									
		January	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
		February	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
		March	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
		April	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
GnA:										
Glenford--------	C									
		January	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		May	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		November	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		December	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
GnB:										
Glenford--------	C									
		January	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		May	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		November	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		December	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
HaB:										
Haubstadt-------	C									
		January	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
HaC2:										
Haubstadt-------	C									
		January	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.0-4.5	Perched	---	---	---	---	---
Hd:										
Haymond---------	B									
		January	---	---	---	---	---	---	Brief	Occasional
		February	---	---	---	---	---	---	Brief	Occasional
		March	---	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	---	Brief	Occasional
		December	---	---	---	---	---	---	Brief	Occasional
HeA:										
Henshaw---------	C									
		January	1.0-2.0	>6.0	Apparent	---	---	---	---	---
		February	1.0-2.0	>6.0	Apparent	---	---	---	---	---
		March	1.0-2.0	>6.0	Apparent	---	---	---	---	---
		November	1.0-2.0	>6.0	Apparent	---	---	---	---	---
		December	1.0-2.0	>6.0	Apparent	---	---	---	---	---
HkD2:										
Hickory---------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
HkE2:										
Hickory---------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Ht:										
Huntington------	B									
		January	---	---	---	---	---	---	Brief	Occasional
		February	---	---	---	---	---	---	Brief	Occasional
		March	---	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	---	Brief	Occasional
		December	---	---	---	---	---	---	Brief	Occasional
KaA:										
Kendallville----	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
KaB:										
Kendallville----	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
KeC2:										
Kendallville----	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
KeD2:										
Kendallville----	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
KeE2:										
Kendallville----	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Eldean----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Kn:										
Kinn----------	C									
		January	2.0-3.5	>6.0	Apparent	---	---	---	Very brief	Occasional
		February	2.0-3.5	>6.0	Apparent	---	---	---	Very brief	Occasional
		March	2.0-3.5	>6.0	Apparent	---	---	---	Very brief	Occasional
		April	2.0-3.5	>6.0	Apparent	---	---	---	Very brief	Occasional
		December	2.0-3.5	>6.0	Apparent	---	---	---	Very brief	Occasional
Ko:										
Kokomo----------	B/D									
		January	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		April	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		May	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		December	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
Kp:										
Kokomo----------	B/D									
		January	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		April	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		May	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
		December	0.0-0.5	>6.0	Apparent	0.0-2.0	Long	Occasional	---	---
LfC2:										
Latham----------	D									
		January	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
LfD2:										
Latham----------	D									
		January	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
LfE:										
Latham----------	D									
		January	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
LgD:										
Latham----------	D									
		January	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-3.5	Perched	---	---	---	---	---
Wharton---------	B									
		January	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		February	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		March	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		April	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
LrB:										
Libre----------	B									
		January	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
LrC2:										
Libre----------	B									
		January	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
MaB:										
Markland--------	C									
		January	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		February	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		March	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		April	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		December	3.0-6.0	>6.0	Apparent	---	---	---	---	---
MbC2:										
Markland--------	C									
		January	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		February	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		March	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		April	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		December	3.0-6.0	>6.0	Apparent	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
MbD2:										
Markland--------	C									
		January	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		February	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		March	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		April	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		December	3.0-6.0	>6.0	Apparent	---	---	---	---	---
MbE2:										
Markland--------	C									
		January	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		February	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		March	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		April	3.0-6.0	>6.0	Apparent	---	---	---	---	---
		December	3.0-6.0	>6.0	Apparent	---	---	---	---	---
McA:										
Martinsville----	B									
		January	---	---	---	---	---	---	Extremely brief	Rare
		February	---	---	---	---	---	---	Extremely brief	Rare
		March	---	---	---	---	---	---	Extremely brief	Rare
		April	---	---	---	---	---	---	Extremely brief	Rare
MdA:										
McGary----------	C									
		January	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		February	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		March	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		April	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		December	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
MdB:										
McGary----------	C									
		January	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		February	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		March	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		April	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
		December	0.5-1.5	1.0-3.5	Perched	---	---	---	---	---
MeC2:										
Mentor----------	B									
		February	4.0-6.0	>6.0	Apparent	---	---	---	---	---
		March	4.0-6.0	>6.0	Apparent	---	---	---	---	---
MeD2:										
Mentor----------	B									
		February	4.0-6.0	>6.0	Apparent	---	---	---	---	---
		March	4.0-6.0	>6.0	Apparent	---	---	---	---	---
MfA:										
Mentor----------	B									
		January	---	---	---	---	---	---	Extremely brief	Rare
		February	>4.0	>6.0	Apparent	---	---	---	Extremely brief	Rare
		March	>4.0	>6.0	Apparent	---	---	---	Extremely brief	Rare
		April	---	---	---	---	---	---	Extremely brief	Rare
		May	---	---	---	---	---	---	Extremely brief	Rare
		June	---	---	---	---	---	---	Extremely brief	Rare
		July	---	---	---	---	---	---	Extremely brief	Rare
		August	---	---	---	---	---	---	Extremely brief	Rare
		September	---	---	---	---	---	---	Extremely brief	Rare
		October	---	---	---	---	---	---	Extremely brief	Rare
		November	---	---	---	---	---	---	Extremely brief	Rare
		December	---	---	---	---	---	---	Extremely brief	Rare

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
MgA:										
Mentor----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
MgB:										
Mentor----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
MhB:										
Miamian---------	C									
		January	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
MhB2:										
Miamian---------	C									
		January	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
MhC2:										
Miamian---------	C									
		January	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
MhD2:										
Miamian---------	C									
		January	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
MhE:										
Miamian---------	C									
		January	2.5-3.5	3.0-6.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-6.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-6.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-6.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-6.0	Perched	---	---	---	---	---
MmC2:										
Miamian---------	C									
		January	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
MmD2:										
Miamian---------	C									
		January	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
MnB:										
Miamian---------	C									
		January	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		February	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		March	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		April	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
		December	2.5-3.5	3.0-4.0	Perched	---	---	---	---	---
Lewisburg-------	C									
		January	1.0-3.5	1.5-5.0	Perched	---	---	---	---	---
		February	1.0-3.5	1.5-5.0	Perched	---	---	---	---	---
		March	1.0-3.5	1.5-5.0	Perched	---	---	---	---	---
		April	1.0-3.5	1.5-5.0	Perched	---	---	---	---	---
MoB:										
Milton----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
MoC2:										
Milton----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
MoE2:										
Milton----------	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
NeC2:										
Negley----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
NeD2:										
Negley----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
NeE2:										
Negley----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
NnA:										
Nineveh---------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
NnB:										
Nineveh---------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
ObA:										
Ockley----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
ObB:										
Ockley----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
OmB:										
Omulga----------	C									
		January	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
OmC2:										
Omulga----------	C									
		January	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-3.5	Perched	---	---	---	---	---
Or:										
Orrville--------	C									
		January	1.0-2.5	>6.0	Apparent	---	---	---	Brief	Frequent
		February	1.0-2.5	>6.0	Apparent	---	---	---	Brief	Frequent
		March	1.0-2.5	>6.0	Apparent	---	---	---	Brief	Frequent
		April	1.0-2.5	>6.0	Apparent	---	---	---	Brief	Frequent
		May	1.0-2.5	>6.0	Apparent	---	---	---	Brief	Frequent
		June	1.0-2.5	>6.0	Apparent	---	---	---	---	---
		November	1.0-2.5	>6.0	Apparent	---	---	---	Brief	Frequent
		December	1.0-2.5	>6.0	Apparent	---	---	---	Brief	Frequent
OwB:										
Otwell----------	C									
		January	2.0-3.5	3.5-6.0	Perched	---	---	---	---	---
		February	2.0-3.5	3.5-6.0	Perched	---	---	---	---	---
		March	2.0-3.5	3.5-6.0	Perched	---	---	---	---	---
		April	2.0-3.5	3.5-6.0	Perched	---	---	---	---	---
Pc:										
Patton----------	B/D									
		January	0.0-2.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		February	0.0-2.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		March	0.0-2.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		April	0.0-2.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		May	0.0-2.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
Pg:										
Peoga----------	C									
		January	0.0-1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		February	0.0-1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		March	0.0-1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		April	0.0-1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		May	0.0-1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
		December	0.0-1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	---	---
PkA:										
Pike----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
PkB:										
Pike----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Pn:										
Pits, gravel.										
Po:										
Pits, quarry.										

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
Pp:										
Pope	B									
		January	---	---	---	---	---	---	Brief	Frequent
		February	---	---	---	---	---	---	Brief	Frequent
		March	---	---	---	---	---	---	Brief	Frequent
		April	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent
PtB:										
Princeton	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
PtC:										
Princeton	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
PtD:										
Princeton	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
RbA:										
Rainsboro	C									
		January	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
RbB:										
Rainsboro	C									
		January	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
RbC2:										
Rainsboro	C									
		January	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		February	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		March	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
		April	2.0-3.5	2.5-5.0	Perched	---	---	---	---	---
RcF:										
Rigley	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Rock outcrop.										
RdD2:										
Rodman	A									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
RdE2:										
Rodman	A									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
Rn:										
Ross	B									
		January	---	---	---	---	---	---	Brief	Occasional
		February	4.0-6.0	>6.0	Apparent	---	---	---	Brief	Occasional
		March	4.0-6.0	>6.0	Apparent	---	---	---	Brief	Occasional
		April	4.0-6.0	>6.0	Apparent	---	---	---	Brief	Occasional
		May	---	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	---	Brief	Occasional
		November	---	---	---	---	---	---	Brief	Occasional
		December	---	---	---	---	---	---	Brief	Occasional
Ro:										
Rossburg	B									
		January	---	---	---	---	---	---	Very brief	Rare
		February	---	---	---	---	---	---	Very brief	Rare
		March	---	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	---	Very brief	Rare
		November	---	---	---	---	---	---	Very brief	Rare
		December	---	---	---	---	---	---	Very brief	Rare
RpA:										
Rossmoyne	C									
		January	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		February	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		March	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		April	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
RpB:										
Rossmoyne	C									
		January	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		February	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		March	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		April	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
RpC2:										
Rossmoyne	C									
		January	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		February	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		March	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		April	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
RsB:										
Rossmoyne	C									
		January	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		February	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		March	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		April	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
Cana	C									
		January	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
RsC2:										
Rossmoyne-------	C									
		January	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		February	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		March	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
		April	1.0-2.5	1.5-3.0	Perched	---	---	---	---	---
Cana----------	C									
		January	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
		April	1.5-3.0	2.5-4.5	Perched	---	---	---	---	---
SfD:										
Shelocta--------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
SgF:										
Shelocta--------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Brownsville-----	C									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
ShE:										
Shelocta--------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Cruze----------	C									
		January	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		February	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		March	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
		April	1.5-3.0	3.0-6.0	Perched	---	---	---	---	---
Weikert---------	B/D									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
SkE:										
Shelocta--------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Rigley----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Sp:										
Skidmore--------	B									
		January	3.0-4.0	>6.0	Apparent	---	---	---	Very brief	Occasional
		February	3.0-4.0	>6.0	Apparent	---	---	---	Very brief	Occasional
		March	3.0-4.0	>6.0	Apparent	---	---	---	Very brief	Occasional
		April	---	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	---	Very brief	Occasional
		December	3.0-4.0	>6.0	Apparent	---	---	---	Very brief	Occasional
St:										
Sloan----------	B/D									
		January	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		February	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		March	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		April	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		May	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		June	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		November	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional
		December	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Occasional

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
SuB:										
Spargus---------	B									
		January	4.0-6.0	>6.0	Apparent	---	---	---	Extremely brief	Very rare
		February	4.0-6.0	>6.0	Apparent	---	---	---	Extremely brief	Very rare
		March	4.0-6.0	>6.0	Apparent	---	---	---	Extremely brief	Very rare
		April	4.0-6.0	>6.0	Apparent	---	---	---	Extremely brief	Very rare
		December	4.0-6.0	>6.0	Apparent	---	---	---	Extremely brief	Very rare
Sv:										
Stonelick-------	B									
		January	---	---	---	---	---	---	Brief	Occasional
		February	---	---	---	---	---	---	Brief	Occasional
		March	---	---	---	---	---	---	Brief	Occasional
		April	---	---	---	---	---	---	Brief	Occasional
		May	---	---	---	---	---	---	Brief	Occasional
		June	---	---	---	---	---	---	Brief	Occasional
		November	---	---	---	---	---	---	Brief	Occasional
		December	---	---	---	---	---	---	Brief	Occasional
Sw:										
Stonelick-------	B									
		January	---	---	---	---	---	---	Brief	Frequent
		February	---	---	---	---	---	---	Brief	Frequent
		March	---	---	---	---	---	---	Brief	Frequent
		April	---	---	---	---	---	---	Brief	Frequent
		May	---	---	---	---	---	---	Brief	Frequent
		June	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent
TbA:										
Taggart---------	C									
		January	0.5-2.0	>6.0	Apparent	---	---	---	---	---
		February	0.5-2.0	>6.0	Apparent	---	---	---	---	---
		March	0.5-2.0	>6.0	Apparent	---	---	---	---	---
		April	0.5-2.0	>6.0	Apparent	---	---	---	---	---
		December	0.5-2.0	>6.0	Apparent	---	---	---	---	---
ThC3:										
Thrifton--------	C									
		January	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		February	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		March	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		April	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		December	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
ThD3:										
Thrifton--------	C									
		January	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		February	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		March	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		April	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		December	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
ThE3:										
Thrifton--------	C									
		January	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		February	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		March	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		April	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---
		December	1.5-3.5	2.5-4.0	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
TnA:										
Tilsit----------	C									
		January	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
		February	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
		March	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
		April	1.5-2.5	2.0-5.0	Perched	---	---	---	---	---
To:										
Tioga----------	B									
		January	---	---	---	---	---	---	Brief	Frequent
		February	3.0-6.0	>6.0	Apparent	---	---	---	Brief	Frequent
		March	3.0-6.0	>6.0	Apparent	---	---	---	Brief	Frequent
		April	3.0-6.0	>6.0	Apparent	---	---	---	Brief	Frequent
		May	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent
TyA:										
Tyler----------	D									
		January	0.5-2.0	1.5-5.0	Perched	---	---	---	---	---
		February	0.5-2.0	1.5-5.0	Perched	---	---	---	---	---
		March	0.5-2.0	1.5-5.0	Perched	---	---	---	---	---
		April	0.5-2.0	1.5-5.0	Perched	---	---	---	---	---
		May	0.5-2.0	1.5-5.0	Perched	---	---	---	---	---
		November	0.5-2.0	1.5-5.0	Perched	---	---	---	---	---
		December	0.5-2.0	1.5-5.0	Perched	---	---	---	---	---
Ud:										
Udorthents------	---									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
W:										
Water.										
WcA:										
Warsaw----------	B									
		Jan-Dec	>6.0	>6.0	---	---	---	---	---	---
Wk:										
Westland--------	B/D									
		January	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		February	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		March	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		April	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
		December	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
WtB:										
Wyatt----------	C									
		January	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		November	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		December	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
WyC2:										
Wyatt----------	C									
		January	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		November	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		December	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---

Table 25.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
WyD2: Wyatt	C	January	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		February	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		March	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		November	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---
		December	1.5-3.0	2.5-5.5	Perched	---	---	---	---	---

Table 26.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Subsidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
Aa:							
Adrian	---	>80	---	29-33	High	High	Moderate.
AcC2:							
Alexandria	Dense material	40-60	---	---	Moderate	Moderate	Moderate.
AcD2:							
Alexandria	Dense material	40-60	---	---	Moderate	Moderate	Moderate.
AcE2:							
Alexandria	Dense material	40-60	---	---	Moderate	Moderate	Moderate.
AeE2:							
Alexandria	Dense material	40-60	---	---	Moderate	Moderate	Moderate.
Fox	Strongly contrasting textural stratification	>80	---	---	Moderate	Moderate	Moderate.
AvA:							
Avonburg	---	>80	---	---	High	High	High.
AvB:							
Avonburg	---	>80	---	---	High	High	High.
BeD:							
Berks	Bedrock (lithic)	20-40	Strongly cemented	---	Low	Low	High.
BeE:							
Berks	Bedrock (lithic)	20-40	Strongly cemented	---	Low	Low	High.
BgC:							
Berks	Bedrock (lithic)	20-40	Strongly cemented	---	Low	Low	High.
Tarhollow	Bedrock (paralithic)	40-80	Weakly cemented	---	High	High	Moderate.
CaB:							
Cana	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	Moderate.
CaC2:							
Cana	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	Moderate.
CaD2:							
Cana	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	Moderate.
CaE2:							
Cana	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	Moderate.
Cd:							
Carlisle	---	>80	---	43-54	High	High	Low.

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
CeD:							
Casco	Strongly contrasting textural stratification	10-20	---	---	Low	Moderate	Low.
Rodman	---	>80	---	---	Low	Low	Low.
CgA:							
Celina	Dense material	20-40	---	---	High	High	Moderate.
CgB:							
Celina	Dense material	20-40	---	---	High	High	Moderate.
CgB2:							
Celina	Dense material	20-40	---	---	High	High	Moderate.
ChA:							
Chavies	---	>80	---	---	None	Low	Moderate.
CmA:							
Cidermill	---	>80	---	---	Moderate	Low	High.
CmB:							
Cidermill	---	>80	---	---	Moderate	Low	High.
Cp:							
Clifty	---	>80	---	---	None	Low	High.
CrA:							
Coolville	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	High.
CrB:							
Coolville	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	High.
CrC2:							
Coolville	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	High.
CvA:							
Crosby	Dense material	20-40	---	---	High	High	Moderate.
CvB:							
Crosby	Dense material	20-40	---	---	High	High	Moderate.
CwC2:							
Cruze	Bedrock (paralithic)	48-60	Weakly cemented	---	High	High	High.
CwD:							
Cruze	Bedrock (paralithic)	48-60	Weakly cemented	---	High	High	High.
CwE:							
Cruze	Bedrock (paralithic)	48-60	Weakly cemented	---	High	High	High.
DAM:							
Dam.							

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
EeA:							
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
EeB:							
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
EeC2:							
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
EgA:							
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
EgB:							
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
EgC2:							
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
ErD:							
Ernest	Fragipan	20-36	---	---	Moderate	Moderate	Moderate.
EuA:							
Euclid	---	>80	---	---	High	High	High.
FhA:							
Fitchville	---	>80	---	---	High	High	Moderate.
FhB:							
Fitchville	---	>80	---	---	High	High	Moderate.
FnB:							
Fox	Strongly contrasting textural stratification	20-40	---	---	Moderate	Moderate	Moderate.
FnC2:							
Fox	Strongly contrasting textural stratification	20-40	---	---	Moderate	Moderate	Moderate.
Ge:							
Gessie	---	>80	---	---	Moderate	Low	Low.

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
Gf:							
Gessie	---	>80	---	---	Moderate	Low	Low.
GgC2:							
Gilpin	Bedrock (lithic)	20-40	Moderately cemented	---	Moderate	Low	High.
GhC:							
Gilpin	Bedrock (lithic)	20-40	Moderately cemented	---	Moderate	Low	High.
Tilsit	Fragipan	18-28	Moderately cemented	---	None	High	High.
	Bedrock (lithic)	40-80	---				
GnA:							
Glenford	---	>80	---	---	High	Moderate	Moderate.
GnB:							
Glenford	---	>80	---	---	High	Moderate	Moderate.
HaB:							
Haubstadt	Fragipan	16-36	---	---	Moderate	Moderate	High.
HaC2:							
Haubstadt	Fragipan	16-36	---	---	Moderate	Moderate	High.
Hd:							
Haymond	---	>80	---	---	High	Low	Low.
HeA:							
Henshaw	---	>80	---	---	None	High	Moderate.
HkD2:							
Hickory	---	>80	---	---	Moderate	Moderate	Moderate.
HkE2:							
Hickory	---	>80	---	---	Moderate	Moderate	Moderate.
Ht:							
Huntington	---	>80	---	---	High	Low	Moderate.
KaA:							
Kendallville	---	>80	---	---	Moderate	Moderate	Moderate.
KaB:							
Kendallville	---	>80	---	---	Moderate	Moderate	Moderate.
KeC2:							
Kendallville	---	>80	---	---	Moderate	Moderate	Moderate.
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
KeD2:							
Kendallville	---	>80	---	---	Moderate	Moderate	Moderate.
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
KeE2:							
Kendallville	---	>80	---	---	Moderate	Moderate	Moderate.
Eldean	Strongly contrasting textural stratification	20-40	---	---	Moderate	High	Moderate.
Kn:							
Kinn	---	>80	---	---	High	Moderate	Low.
Ko:							
Kokomo	---	>80	---	---	High	High	Low.
Kp:							
Kokomo	---	>80	---	---	High	High	Low.
LfC2:							
Latham	Bedrock (paralithic)	20-40	Weakly cemented	---	High	High	High.
LfD2:							
Latham	Bedrock (paralithic)	20-40	Weakly cemented	---	High	High	High.
LfE:							
Latham	Bedrock (paralithic)	20-40	Weakly cemented	---	High	High	High.
LgD:							
Latham	Bedrock (paralithic)	20-40	Weakly cemented	---	High	High	High.
Wharton	Bedrock (lithic)	40-72	Moderately cemented	---	None	Low	High.
LrB:							
Libre	---	>80	---	---	High	Moderate	High.
LrC2:							
Libre	---	>80	---	---	High	Moderate	High.
MaB:							
Markland	---	>80	---	---	Moderate	High	Moderate.
MbC2:							
Markland	---	>80	---	---	Moderate	High	Moderate.
MbD2:							
Markland	---	>80	---	---	Moderate	High	Moderate.
MbE2:							
Markland	---	>80	---	---	Moderate	High	Moderate.
McA:							
Martinsville	---	>80	---	---	Moderate	Moderate	Moderate.
MdA:							
McGary	---	>80	---	---	High	High	Low.
MdB:							
McGary	---	>80	---	---	High	High	Low.

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
MeC2:							
Mentor	---	>80	---	---	High	Moderate	High.
MeD2:							
Mentor	---	>80	---	---	High	Moderate	High.
MfA:							
Mentor	---	>80	---	---	High	Moderate	High.
MgA:							
Mentor	---	>80	---	---	High	Moderate	High.
MgB:							
Mentor	---	>80	---	---	High	Moderate	High.
MhB:							
Miamian	Dense material	20-40	---	---	Moderate	Moderate	Moderate.
MhB2:							
Miamian	Dense material	20-40	---	---	Moderate	Moderate	Moderate.
MhC2:							
Miamian	Dense material	20-40	---	---	Moderate	Moderate	Moderate.
MhD2:							
Miamian	Dense material	20-40	---	---	Moderate	Moderate	Moderate.
MhE:							
Miamian	Dense material	20-40	---	---	Moderate	Moderate	Moderate.
MmC2:							
Miamian	Dense material	20-40	Moderately cemented	---	Moderate	Moderate	Moderate.
	Bedrock (paralithic)	40-60	---				
MmD2:							
Miamian	Dense material	20-40	Moderately cemented	---	Moderate	Moderate	Moderate.
	Bedrock (paralithic)	40-60	---				
MnB:							
Miamian	Dense material	20-40	---	---	Moderate	Moderate	Moderate.
Lewisburg	Dense material	10-20	---	---	High	Moderate	Moderate.
MoB:							
Milton	Bedrock (lithic)	20-40	Strongly cemented	---	Moderate	High	Moderate.
MoC2:							
Milton	Bedrock (lithic)	20-40	Strongly cemented	---	Moderate	High	Moderate.
MoE2:							
Milton	Bedrock (lithic)	20-40	Strongly cemented	---	Moderate	High	Moderate.
NeC2:							
Negley	---	>80	---	---	Moderate	Low	High.
NeD2:							
Negley	---	>80	---	---	Moderate	Low	High.

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
NeE2:							
Negley	---	>80	---	---	Moderate	Low	High.
NnA:							
Nineveh	Strongly contrasting textural stratification	20-40	---	---	Moderate	Low	Low.
NnB:							
Nineveh	Strongly contrasting textural stratification	20-40	---	---	Moderate	Low	Low.
ObA:							
Ockley	Strongly contrasting textural stratification	40-72	---	---	Moderate	Moderate	Moderate.
ObB:							
Ockley	Strongly contrasting textural stratification	40-72	---	---	Moderate	Moderate	Moderate.
OmB:							
Omulga	Fragipan	18-36	---	---	High	Moderate	High.
OmC2:							
Omulga	Fragipan	18-36	---	---	High	Moderate	High.
Or:							
Orrville	---	>80	---	---	High	High	Moderate.
OwB:							
Otwell	Fragipan	20-50	---	---	High	Moderate	High.
Pc:							
Patton	---	>80	---	---	High	High	Low.
Pg:							
Peoga	---	>80	---	---	High	High	High.
PkA:							
Pike	---	>80	---	---	High	Low	High.
PkB:							
Pike	---	>80	---	---	High	Low	High.
Pn:							
Pits, gravel.							
Po:							
Pits, quarry.							
Pp:							
Pope	---	>80	---	---	Moderate	Low	High.
PtB:							
Princeton	---	>80	---	---	Moderate	Moderate	Moderate.

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
PtC:							
Princeton	---	>80	---	---	Moderate	Moderate	Moderate.
PtD:							
Princeton	---	>80	---	---	Moderate	Moderate	Moderate.
RbA:							
Rainsboro	Fragipan	18-36	---	---	High	Moderate	Moderate.
RbB:							
Rainsboro	Fragipan	18-36	---	---	High	Moderate	Moderate.
RbC2:							
Rainsboro	Fragipan	18-36	---	---	High	Moderate	Moderate.
RcF:							
Rigley	Bedrock (lithic)	60-80	Moderately cemented	---	None	Low	High.
Rock outcrop.							
RdD2:							
Rodman	---	>80	---	---	Low	Low	Low.
RdE2:							
Rodman	---	>80	---	---	Low	Low	Low.
Rn:							
Ross	---	>80	---	---	Moderate	Low	Low.
Ro:							
Rossburg	---	>80	---	---	Moderate	Low	Low.
RpA:							
Rossmoyne	Fragipan	18-30	---	---	High	High	High.
RpB:							
Rossmoyne	Fragipan	18-30	---	---	High	High	High.
RpC2:							
Rossmoyne	Fragipan	18-30	---	---	High	High	High.
RsB:							
Rossmoyne	Fragipan	18-30	---	---	High	High	High.
Cana	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	Moderate.
RsC2:							
Rossmoyne	Fragipan	18-30	---	---	High	High	High.
Cana	Bedrock (paralithic)	40-60	Weakly cemented	---	High	High	Moderate.
SfD:							
Shelocta	Bedrock (lithic)	60-80	Moderately cemented	---	None	Low	High.
SgF:							
Shelocta	Bedrock (lithic)	60-80	Moderately cemented	---	None	Low	High.
Brownsville	Bedrock (lithic)	40-72	Strongly cemented	---	Moderate	Low	High.

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Subsidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
ShE:							
Shelocta	Bedrock (lithic)	60-80	Moderately cemented	---	None	Low	High.
Cruze	Bedrock (paralithic)	48-60	Weakly cemented	---	High	High	High.
Weikert	Bedrock (lithic)	10-20	Moderately cemented	---	Moderate	Moderate	Moderate.
SkE:							
Shelocta	Bedrock (lithic)	60-80	Moderately cemented	---	None	Low	High.
Rigley	Bedrock (lithic)	60-80	Moderately cemented	---	None	Low	High.
Sp:							
Skidmore	Bedrock (lithic)	40-80	Moderately cemented	---	None	Low	Moderate.
St:							
Sloan	---	>80	---	---	High	High	Low.
SuB:							
Spargus	---	>80	---	---	Moderate	Moderate	High.
Sv:							
Stonelick	---	>80	---	---	Moderate	Low	Low.
Sw:							
Stonelick	---	>80	---	---	Moderate	Low	Low.
TbA:							
Taggart	---	>80	---	---	High	High	High.
ThC3:							
Thrifton	Dense material	10-20	---	---	Moderate	Low	Low.
ThD3:							
Thrifton	Dense material	10-20	---	---	Moderate	Low	Low.
ThE3:							
Thrifton	Dense material	10-20	---	---	Moderate	Low	Low.
TnA:							
Tilsit	Fragipan	18-28	Moderately cemented	---	None	High	High.
	Bedrock (lithic)	40-80	---				
To:							
Tioga	---	>80	---	---	Moderate	Low	Moderate.
TyA:							
Tyler	Fragipan	18-60	---	---	High	High	High.
Ud:							
Udorthents	---	>80	---	---	---	---	---
W:							
Water	---	>80	---	---	---	---	---

Table 26.--Soil Features--Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Sub-sidence	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In		In			
WcA:							
Warsaw	Strongly contrasting textural stratification	20-40	---	---	Moderate	Low	Moderate.
Wk:							
Westland	---	>80	---	---	High	High	Low.
WtB:							
Wyatt	---	>80	---	---	High	High	High.
WyC2:							
Wyatt	---	>80	---	---	High	High	High.
WyD2:							
Wyatt	---	>80	---	---	High	High	High.

Table 27.--Classification of the Soils

(An asterisk in the first column indicates that the soil is a taxadjunct. See text for a description of those characteristics that are outside the range for the series.)

Soil name	Family or higher taxonomic class
Adrian	Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists
Alexandria	Fine, illitic, mesic Oxyaquic Hapludalfs
*Avonburg	Fine-silty, mixed, active, mesic Aeric Fragic Glossaqualfs
Berks	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Brownsville	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Cana	Fine, mixed, active, mesic Aquultic Hapludalfs
Carlisle	Euic, mesic Typic Haplosaprists
Casco	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Inceptic Hapludalfs
Celina	Fine, mixed, active, mesic Aquic Hapludalfs
Chavies	Coarse-loamy, mixed, active, mesic Ultic Hapludalfs
Cidermill	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Clifty	Fine-loamy, mixed, active, mesic Fluventic Dystrudepts
Coolville	Fine, mixed, active, mesic Aquultic Hapludalfs
Crosby	Fine, mixed, active, mesic Aeric Epiaqualfs
Cruze	Fine, mixed, semiactive, mesic Aquic Hapludults
Eldean	Fine, mixed, superactive, mesic Typic Hapludalfs
Ernest	Fine-loamy, mixed, superactive, mesic Aquic Fragiudults
Euclid	Fine-silty, mixed, active, nonacid, mesic Aeric Endoaquepts
Fitchville	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Fox	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Hapludalfs
Gessie	Fine-loamy, mixed, superactive, mesic Fluventic Eutrudepts
Gilpin	Fine-loamy, mixed, semiactive, mesic Typic Hapludults
Glenford	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Haubstadt	Fine-silty, mixed, active, mesic Aquic Fragiudalfs
Haymond	Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
*Henshaw	Fine-silty, mixed, active, mesic Aquic Hapludalfs
Hickory	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Huntington	Fine-silty, mixed, active, mesic Fluventic Hapludolls
Kendallville	Fine-loamy, mixed, superactive, mesic Typic Hapludalfs
Kinn	Fine-loamy, mixed, superactive, calcareous, mesic Oxyaquic Udifluvents
Kokomo	Fine, mixed, superactive, mesic Typic Argiaquolls
Latham	Fine, mixed, semiactive, mesic Aquic Hapludults
Lewisburg	Fine, mixed, active, mesic Aquic Hapludalfs
Libre	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Markland	Fine, mixed, active, mesic Typic Hapludalfs
Martinsville	Fine-loamy, mixed, active, mesic Typic Hapludalfs
McGary	Fine, mixed, active, mesic Aeric Epiaqualfs
Mentor	Fine-silty, mixed, active, mesic Typic Hapludalfs
Miamian	Fine, mixed, active, mesic Oxyaquic Hapludalfs
Milton	Fine, mixed, active, mesic Typic Hapludalfs
Negley	Fine-loamy, mixed, active, mesic Typic Paleudalfs
Nineveh	Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Typic Argiudolls
Ockley	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Omulga	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Orrville	Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Otwell	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Patton	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Peoga	Fine-silty, mixed, superactive, mesic Fragic Epiaqualfs
Pike	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Pope	Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts
Princeton	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Rainsboro	Fine-silty, mixed, superactive, mesic Oxyaquic Fragiudalfs
Rigley	Coarse-loamy, mixed, active, mesic Typic Hapludults
Rodman	Sandy-skeletal, mixed, mesic Typic Hapludolls
Ross	Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls
Rossburg	Fine-loamy, mixed, superactive, mesic Fluventic Hapludolls
Rossmoyne	Fine-silty, mixed, superactive, mesic Aquic Fragiudalfs
Shelocta	Fine-loamy, mixed, active, mesic Typic Hapludults
Skidmore	Loamy-skeletal, mixed, semiactive, mesic Dystric Fluventic Eutrudepts
Sloan	Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls

Table 27.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Spargus	Fine-loamy, mixed, active, mesic Fluventic Dystrudepts
Stonelick	Coarse-loamy, mixed, superactive, calcareous, mesic Typic Udifluvents
Taggart	Fine-silty, mixed, active, mesic Aeric Epiaqualfs
Tarhollow	Fine-silty, mixed, active, mesic Oxyaquic Hapludalfs
Thrifton	Fine-loamy, mixed, superactive, mesic Oxyaquic Hapludalfs
Tilsit	Fine-silty, mixed, semiactive, mesic Typic Fragiudults
Tioga	Coarse-loamy, mixed, active, mesic Dystric Fluventic Eutrudepts
Tyler	Fine-silty, mixed, active, mesic Aeric Fragiaquults
Warsaw	Fine-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Typic Argiudolls
Weikert	Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts
*Westland	Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Wharton	Fine-loamy, mixed, active, mesic Aquic Hapludults
Wyatt	Fine, illitic, mesic Aquic Hapludalfs

Interpretive Groups

This table is a compilation of the various interpretive groups to which the soils of Ross County have been assigned. The soils are grouped according to various features that affect use and management.

The table shows the land capability classification of the soils in Ross County. Detailed information is available in the “Crops and Pasture” section under the heading “Land Capability Classification.”

Pasture and hayland suitability groups are described under the heading “Pasture and Hayland Interpretations.”

The table shows the prime farmland status of the soils in Ross County. Detailed information about prime farmland criteria is provided in the “Crops and Pasture” section under the heading “Prime Farmland.”

Also listed in the table are the woodland ordination symbols for the soils in the survey area. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity for forestland. The first part of the ordination symbol, a number, indicates the potential productivity of the soils for an indicator tree species. The number indicates the volume, in cubic meters per hectare per year, which the indicator species can produce in a pure stand under natural conditions. The number 1 indicates low potential productivity; 2 or 3, moderate; 4 or 5, moderately high; 6 to 8, high; 9 to 11, very high; and 12 to 39, extremely high. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter R indicates steep slopes; X, stoniness or rockiness; W, excess water in or on the soil; T, toxic substances in the soil; D, restricted rooting depth; C, clay in the upper part of the soil; S, sandy texture; F, a high content of rock fragments in the soil; and L, low strength. The letter A indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, F, and L.

Interpretive Groups

(See text for descriptions of the various interpretive groups. Absence of an entry indicates that the soil is not assigned to the interpretive group.)

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
Aa:				
Adrian	5w	D-1	No	2W
AcC2:				
Alexandria	3e	A-1	No	4A
AcD2:				
Alexandria	4e	A-1	No	4R
AcE2:				
Alexandria	6e	A-3	No	4R
AeE2	6e		No	
Alexandria		A-3		4R
Fox		A-3		4R
AvA:				
Avonburg	2w	C-2	Yes*	4D
AvB:				
Avonburg	2e	C-2	Yes*	4D
BeD:				
Berks	4e	F-1	No	4F
BeE:				
Berks	6e	F-2	No	4F
BgC	3e		No	
Berks		F-1		4F
Tarhollow		A-6		4A
CaB:				
Cana	2e	A-6	Yes	4A
CaC2:				
Cana	3e	A-6	No	4A
CaD2:				
Cana	4e	A-6	No	4R
CaE2:				
Cana	6e	A-3	No	4R
Cd:				
Carlisle	3w	D-1	No	2W
CeD	6e		No	
Casco		B-1		4R
Rodman		B-1		4S
CgA:				
Celina	1	A-6	Yes	5D

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
CgB:				
Celina	2e	A-6	Yes	5D
CgB2:				
Celina	2e	A-6	Yes	5D
ChA:				
Chavies	1	A-1	Yes	5A
CmA:				
Cidermill	1	A-1	Yes	5A
CmB:				
Cidermill	2e	A-1	Yes	5A
Cp:				
Clifty	2s	A-5	Yes	3A
CrA:				
Coolville	2w	A-6	Yes	4C
CrB:				
Coolville	2e	A-6	Yes	4C
CrC2:				
Coolville	3e	A-6	No	4C
CvA:				
Crosby	2w	C-1	Yes*	4W
CvB:				
Crosby	2e	C-1	Yes*	4W
CwC2:				
Cruze	3e	A-6	No	4C
CwD:				
Cruze	4e	A-6	No	4R
CwE:				
Cruze	6e	F-6	No	4R
DAM.				
Dam				
EeA:				
Eldean	2s	B-1	Yes	4A
EeB:				
Eldean	2e	B-1	Yes	4A
EeC2:				
Eldean	3e	B-1	No	4A
EgA:				
Eldean	2s	B-1	Yes	4A
EgB:				
Eldean	2e	B-1	Yes	4A

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
EgC2:				
Eldean	3e	B-1	No	4A
ErD:				
Ernest	4e	F-3	No	4D
EuA:				
Euclid	2w	C-1	Yes*	4W
FhA:				
Fitchville	2w	C-1	Yes*	4W
FhB:				
Fitchville	2e	C-1	Yes*	4W
FnB:				
Fox	2e	A-1	Yes	4A
FnC2:				
Fox	3e	A-1	No	4A
Ge:				
Gessie	2w	A-5	Yes	5A
Gf:				
Gessie	2w	A-5	Yes**	5A
GgC2:				
Gilpin	3e	F-1	No	4D
GhC	3e		No	
Gilpin		F-1		4D
Tilsit		F-3		4D
GnA:				
Glenford	1	A-6	Yes	5A
GnB:				
Glenford	2e	A-6	Yes	5A
HaB:				
Haubstadt	2e	F-3	Yes	4D
HaC2:				
Haubstadt	3e	F-3	No	4D
Hd:				
Haymond	2w	A-5	Yes	5A
HeA:				
Henshaw	2w	C-1	Yes*	5W
HkD2:				
Hickory	4e	A-1	No	5R
HkE2:				
Hickory	6e	A-3	No	5R

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
Ht:				
Huntington	2w	A-5	Yes	5A
KaA:				
Kendallville	1	A-1	Yes	5A
KaB:				
Kendallville	2e	A-1	Yes	5A
KeC2	3e		No	
Kendallville		A-1		5A
Eldean		B-1		4A
KeD2	4e		No	
Kendallville		A-1		5R
Eldean		B-1		4R
KeE2	6e		No	
Kendallville		A-3		5R
Eldean		B-2		4R
Kn:				
Kinn	2w	A-5	Yes	4A
Ko:				
Kokomo	2w	C-1	Yes*	5W
Kp:				
Kokomo	2w	C-1	Yes*	5W
LfC2:				
Latham	4e	F-1	No	3C
LfD2:				
Latham	6e	F-1	No	4R
LfE:				
Latham	6e	F-2	No	4R
LgD	6e		No	
Latham		F-1		4R
Wharton		A-2		4R
LrB:				
Libre	2e	A-6	Yes	5A
LrC2:				
Libre	3e	A-6	No	5A
MaB:				
Markland	3e	F-5	Yes	4C
MbC2:				
Markland	4e	F-5	No	4C
MbD2:				
Markland	6e	F-5	No	4R

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
MbE2:				
Markland	7e	F-6	No	4R
McA:				
Martinsville	1	A-1	Yes	5A
MdA:				
McGary	3w	C-2	Yes*	4W
MdB:				
McGary	3e	C-2	Yes*	4W
MeC2:				
Mentor	3e	A-6	No	5A
MeD2:				
Mentor	4e	A-6	No	5R
MfA:				
Mentor	1	A-6	Yes	5A
MgA:				
Mentor	1	A-6	Yes	5A
MgB:				
Mentor	2e	A-6	Yes	5A
MhB:				
Miamian	2e	A-1	Yes	5D
MhB2:				
Miamian	2e	A-1	Yes	5D
MhC2:				
Miamian	3e	A-1	No	5D
MhD2:				
Miamian	4e	A-1	No	5R
MhE:				
Miamian	6e	A-3	No	5R
MmC2:				
Miamian	3e	A-1	No	5D
MmD2:				
Miamian	4e	B-1	No	5R
MnB	2e		Yes	
Miamian		A-1		5D
Lewisburg		A-6		4D
MoB:				
Milton	2e	F-1	Yes	4D
MoC2:				
Milton	3e	F-1	No	4D
MoE2:				
Milton	6e	F-2	No	4R

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
NeC2:				
Negley	3e	A-1	No	5A
NeD2:				
Negley	4e	A-1	No	5R
NeE2:				
Negley	6e	A-3	No	5R
NnA:				
Nineveh	2s	A-1	Yes	5A
NnB:				
Nineveh	2e	A-1	Yes	5A
ObA:				
Ockley	1	A-1	Yes	5A
ObB:				
Ockley	2e	A-1	Yes	5A
OmB:				
Omulga	2e	F-3	Yes	4D
OmC2:				
Omulga	3e	F-3	No	4D
Or:				
Orrville	2w	C-3	Yes***	4W
OwB:				
Otwell	2e	F-3	Yes	3D
Pc:				
Patton	2w	C-1	Yes*	4W
Pg:				
Peoga	3w	C-1	Yes*	5W
PkA:				
Pike	1	A-6	Yes	5A
PkB:				
Pike	2e	A-6	Yes	5A
Pn.				
Pits, gravel				
Po.				
Pits, quarry				
Pp:				
Pope	2w	A-5	Yes***	4A
PtB:				
Princeton	2e	A-1	Yes	5A
PtC:				
Princeton	3e	A-1	No	5A

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
PtD:				
Princeton	4e	A-1	No	5R
RbA:				
Rainsboro	2w	F-3	Yes	4D
RbB:				
Rainsboro	2e	F-3	Yes	4D
RbC2:				
Rainsboro	3e	F-3	No	4D
RcF:				
Rigley	7e	H-1	No	4R
Rock outcrop.				
RdD2:				
Rodman	4s	B-1	No	4S
RdE2:				
Rodman	7s	B-2	No	4R
Rn:				
Ross	2w	A-5	Yes	5A
Ro:				
Rossburg	1	A-1	Yes	5A
RpA:				
Rossmoyne	2w	F-3	Yes	4D
RpB:				
Rossmoyne	2e	F-3	Yes	4D
RpC2:				
Rossmoyne	3e	F-3	No	4D
RsB	2e		Yes	
Rossmoyne		F-3		4D
Cana		A-6		4A
RsC2	3e		No	
Rossmoyne		F-3		4D
Cana		A-6		4A
SfD:				
Shelocta	4e	A-1	No	4R
SgF	7e		No	
Shelocta		H-1		4R
Brownsville		H-1		4R
ShE	6e		No	
Shelocta		A-3		4R
Cruze		A-3		4R
Weikert		E-2		3D

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
SkE	7e		No	
Shelocta		A-3		4R
Rigley		A-3		4R
Sp:				
Skidmore	2w	B-3	No	4A
St:				
Sloan	3w	C-3	Yes*	5W
SuB:				
Spargus	2e	A-1	No	4A
Sv:				
Stonelick	2w	A-5	Yes	4A
Sw:				
Stonelick	3w	A-5	Yes**	4A
TbA:				
Taggart	2w	C-1	Yes*	4W
ThC3:				
Thrifton	4e	B-1	No	4D
ThD3:				
Thrifton	6e	B-1	No	4R
ThE3:				
Thrifton	7e	B-2	No	4R
TnA:				
Tilsit	2w	F-3	Yes	4D
To:				
Tioga	2w	A-5	Yes**	4A
TyA:				
Tyler	3w	C-1	Yes*	4W
Ud:				
Udorthents	---	---	No	---
W.				
Water				
WcA:				
Warsaw	2s	A-1	Yes	4A
Wk:				
Westland	2w	C-1	Yes*	5W
WtB:				
Wyatt	3e	A-6	Yes	4C
WyC2:				
Wyatt	4e	A-6	No	4C

See footnotes at end of table.

Interpretive Groups--Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Woodland ordination symbol
WyD2:				
Wyatt	6e	A-6	No	4R

* Where drained.

** Where protected from flooding or not frequently flooded during the growing season.

*** Where drained and either protected from flooding or not frequently flooded during the growing season.

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