United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Purdue University Agricultural Experiment Station and Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation

Soil Survey of Fountain County, Indiana

NRCS Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

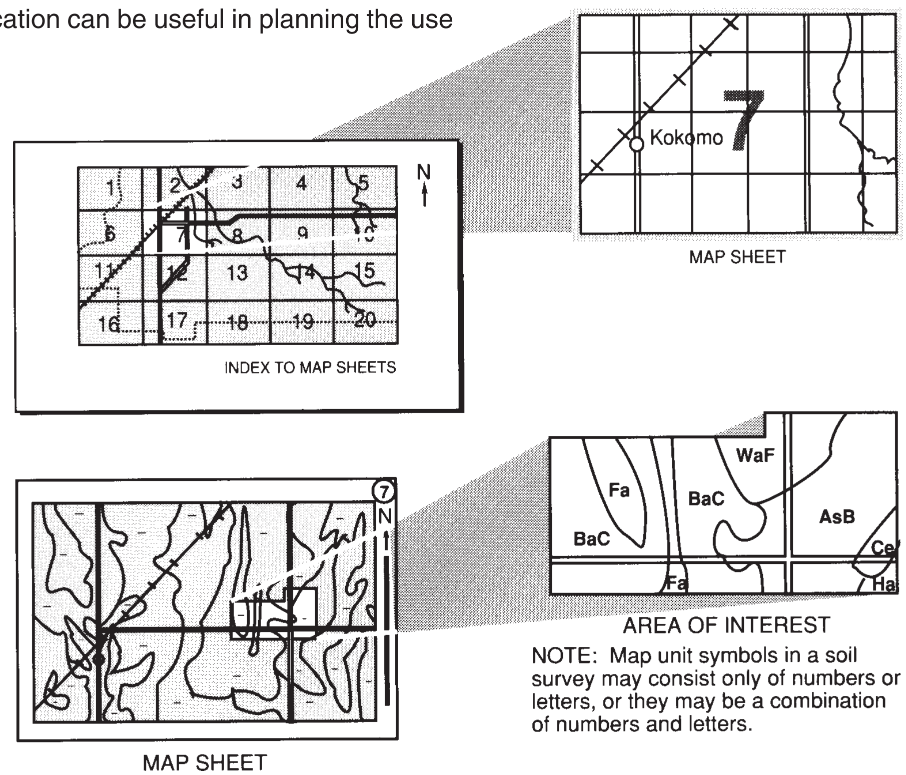
How To Use This Soil Survey

The detailed soil maps in this publication 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 1999. Soil names and descriptions were approved in 1999. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1999. This survey was made cooperatively by the Natural Resources Conservation Service; the Purdue University Agricultural Experiment Station; and the Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation. Financial assistance was made available by the Board of County Commissioners of Fountain County. The survey is part of the technical assistance furnished to the Fountain County Soil and Water Conservation District.

Cover: Cades Mill covered bridge and new bridge in an area of Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, brief duration.

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.

Contents

Issued 2003

Foreword

This soil survey contains information that can be used in land-planning programs in Fountain County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, 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.

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. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Jane Hardisty
State Conservationist
Natural Resources Conservation Service

Soil Survey of Fountain County, Indiana

By Mike Wigginton and Bennie Clark, Natural Resources Conservation Service

Fieldwork by Mike Wigginton, Jerold L. Shively, Scot Haley, Dena Marshall, and Steve Neyhouse, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
Purdue University Agricultural Experiment Station and Indiana Department of Natural Resources, State Soil Conservation Board and Division of Soil Conservation

Fountain County is in the west-central part of Indiana (fig. 1). It has a total area of 254,777 acres, or 397 square miles. It is in Major Land Resource Area 111—Indiana and Ohio Till Plain. The county extends about 29 miles from north to south and 18 miles from east to west. Covington, the county seat, is at the western boundary of the county, along the Wabash River. In 1990, Covington had a population of 2,747 and the county had a population of 17,808 (USDC, 1990).

According to the Indiana Agricultural Statistics Service, about 84 percent of Fountain County is farmed (Gann and Liles, 1998-99). The primary farm products are cash grain crops, hay, and livestock. Corn and soybeans are the main cash grain crops. Hogs, beef cattle, sheep, and poultry are the main kinds of livestock. The county has a few dairy farms. Some areas near local towns and along highways have been developed as sites for dwellings and businesses.

This soil survey updates and refines the survey of Fountain County published in 1966 (USDA, 1966). It provides larger maps, which show the soils in greater detail. It also provides additional information about soil interpretations.

General Nature of the County

This section gives general information about the county. It describes climate; history and settlement; and physiography, relief, and drainage.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at West Lafayette (in nearby Tippecanoe County) in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 25.6 degrees F and the average daily minimum temperature is 17.1 degrees. The lowest temperature on record, which occurred at West Lafayette on January 20, 1985, was minus 24 degrees. In summer, the average temperature is 71.5 degrees and the average daily maximum temperature is 82.4 degrees. The highest temperature, which occurred at West Lafayette on July 14, 1936, was 111 degrees.

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

The average annual total precipitation is 36.21 inches. Of this, about 18.4 inches, or 51 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall was 4.85 inches at West Lafayette on July 18, 1939. Thunderstorms occur on

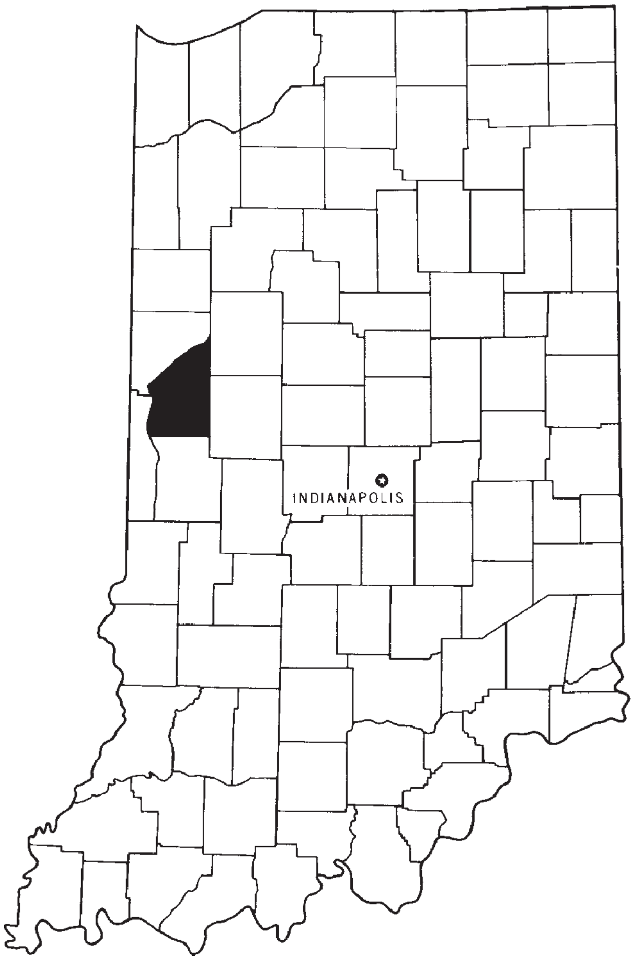


Figure 1.—Location of Fountain County in Indiana.

about 43 days each year, and most occur between April and August.

The average seasonal snowfall is 22.3 inches. The greatest snow depth at any one time was 21 inches on December 19, 1929. On an average, 37 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 14.0 inches on December 18, 1929.

The average relative humidity in mid-afternoon is about 62 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 67 percent of the time in summer and 43 percent in winter. The prevailing wind is usually from the southwest but is from the west-northwest from January to March. Average windspeed is highest, 11 to 12 miles per hour, from February to April.

History and Settlement

Little is known about the earliest inhabitants of present-day western Indiana. By the 1700s, much of the Wabash River Valley, including the area now known as Fountain County, was occupied by the Miami, Piankashaw, and Wea Tribes. These were independent tribes, but they shared the same basic cultural and social characteristics.

On December 30, 1825, Fountain County was declared a legal entity by an act of the Indiana Legislature. It was organized with Covington as the county seat in 1826, 10 years after Indiana was admitted to the Union. Some say that the county was named for the many freshwater springs in the county. The more popular belief, however, is that the county was named for Major James Fontaine of the Kentucky volunteers, who died at the Battle of the Maumee, near Fort Wayne. (See "Illustrated Historical Atlas of the State of Indiana," 1876.)

Great forests of oak and walnut along the Wabash River and smaller streams encouraged settlers to establish homesteads in Fountain County. Poplar was used as finishing lumber. Settlers from Kentucky, the Carolinas, Ohio, and Pennsylvania displaced the native inhabitants. Gristmills were built along Shawnee Creek and the east and north forks of Coal Creek. The Wabash and Erie Canal, which followed the course of the Wabash River, was completed in 1846 and abandoned in 1872. In 1851, roads were cut through the heavy forest, and a plank road from Covington to Crawfordsville was completed.

After the land along the stream and creek bottoms was taken, the fertile Shawnee and Scott prairies were quickly settled. Flat areas, many of which were wet and swampy, were later cleared. At first the wet areas were drained by open ditches and wooden drains. Later, clay and concrete tile lines were used for drainage. Livestock and grain farming became important after the land was cleared and drained. Today, this kind of farming is the most important enterprise in the county.

Physiography, Relief, and Drainage

Fountain County is in the Tipton Till Plain physiographic unit of central Indiana. The stream-dissected bedrock has been covered by glacial till and outwash. Broad, level bottom lands and terraces are along the Wabash River and its tributaries, and broad glacial till and outwash plains are in the rest of the county.

Slopes in Fountain County range from nearly level on bottom lands, terraces, and upland flats to very steep on breaks. Except in the immediate area of the major streams, most of the county has not been severely dissected by weathering and stream cutting.

The county gradually slopes southwest, and its streams flow west and south. All of the county is within the drainage basin of the Wabash River. Most of the surface water in the county drains into the river through two main tributaries and their branches. In the northern part of the county, Shawnee Creek flows west and empties into the river south of Attica. Coal Creek, which drains a much larger area than Shawnee Creek, heads in Montgomery County, enters the east-central part of Fountain County, and flows southwest. It empties into the Wabash River directly south of the county line.

Several other creeks that have small watersheds empty into the Wabash River at various places. Bear Creek, the most scenic, flows through the Portland Arch area and empties into the river directly west of the town of Fountain.

Glaciation is the principal factor that affected the present landforms. The survey area was completely covered by ice of the Wisconsinan glacial period. As the ice receded, meltwaters flowed across the county and formed terraces and outwash plains along the Wabash River and its tributaries.

Portions of several morainic systems are evident in the county.

A glacial sluiceway starts about 2 miles southeast of Covington. It is approximately one-quarter of a mile wide and 6 miles long. An underfit stream, Graham Creek, is in this valley. It empties into Coal Creek east of the town of Coal Creek. The sluiceway is believed to have originated from an overflow of glacial meltwater from the Wabash Valley directly south of Covington.

The terrace material along the Wabash River was brought in by glacial meltwater. As the glacial ice receded, it released a tremendous volume of water. This torrent carried an enormous amount of material that ranged in size from large boulders to very fine sand, silt, and clay. When the water lost its velocity, the material was deposited in very thick stratified beds along the stream channel.

Several outwash plains occur in the county. The largest lies generally between State Route 28 and U.S. Highway 136 on the eastern side of the county and tapers to its outlet between Attica and Fountain on the west. Prairie grasses covered the northern portion of this landform, while trees were dominant to the south. This plain is interrupted only by two moraines that extend into it. The glacial meltwater that formed this plain spilled over into the glacial Wabash River in several places. A broad, shallow outlet occurred between the town of Aylesworth and the Portland Arch on the south and Attica on the north. As the level of meltwater lowered, this outlet became clogged with its own sediments and the remaining water flowed through the Shawnee and upper Coal Creek drainage system, as it does today.

Fountain County is completely covered by a mantle of loess that ranges from a few inches to more than 7 feet in thickness and is underlain by landforms that existed when the loess was deposited. In about half of the county, the mantle is 18 to 42 inches thick. The loess is believed to have been blown from the valleys of the Missouri, Mississippi, and Wabash Rivers. The heavier grained materials were deposited closest to their source, and the finer grains were blown a greater distance.

The underlying bedrock in the eastern third of the county is Mississippian in age. The Wabash Valley and valleys of small streams from Riverside to the northeastern border of the county have some sandstone but are dominated by siltstone and shale. These areas are characterized by Adeland soils on the flats and Cates soils on steep breaks. Mississippian sandstone with some shale is exposed along the valley of the Wabash River from Riverside south towards the Portland Arch. These rocks are exposed along the Wabash River and Big and Little Shawnee Creeks in the northern part of the county and in scattered outcrops in the eastern part. These areas are characterized by Judyville soils on steep breaks (fig. 2) and Mitiwanga soils on flats. In the western two-thirds of the county, the underlying bedrock is Early and Middle Pennsylvanian-age deposits mainly of sandstone and shale. These rocks are exposed in bluffs along the Wabash River and along streams flowing into the Wabash River.

The greatest relief in the county is along the Wabash River and its tributaries, along the breaks between the uplands and the terraces and flood plains. The highest elevation, about 770 feet above sea level, is in the northeastern part of the county. The lowest elevation, about 465 feet above sea level, is at the point where the Wabash River leaves the county, at the southwestern edge.

The Wabash River borders the county on the north and west and is bordered by valleys ranging from about 1 to 5 miles in width. The valleys associated with the major tributaries of the Wabash River range from about 100 feet to about one-half mile in width. The bottom land along the Wabash River and the areas near the mouth of its major tributaries are commonly flooded several times in late winter and early spring.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and

Figure 2.—Portland Arch formation in sandstone bedrock in an area of Judyville fine sandy loam, 25 to 70 percent slopes.

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

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

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

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

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

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

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

Detailed Soil Map Units

The map units delineated on the detailed 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 the detailed soil maps represents an area on the landscape and consists of one or more soils 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 “included” areas that belong to other taxonomic classes.

Most included 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 soils. They may or may not be mentioned in a particular map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar soils. 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 inclusions are mentioned in the map unit descriptions. A few included areas 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 included areas 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 segments that have similar use and management requirements. The delineation of such landscape 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.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying layers, 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 or of the underlying layers. They also can differ in slope, stoniness, frequency of flooding, 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, Angatoka silt loam, outwash substratum, 0 to 2 percent slopes, is a phase of the Angatoka series.

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

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Miami-Rainsville complex, 2 to 6 percent slopes, eroded, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Sloan and Beaucoup soils, 0 to 1 percent slopes, frequently flooded, long duration, is an undifferentiated group in this survey area.

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

The names, descriptions, and delineations of the soils on the detailed soil maps in this survey may not fully agree with those on the maps of adjoining surveys that were completed at an earlier date. Differences are the result of changes in series concepts or variations in the intensity of mapping or in the extent of the soils in the survey areas.

AbfA—Adeland silt loam, 0 to 2 percent slopes

Setting

Landform: Structural benches
Position on landform: Footslopes

Average Composition

Adeland and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the slightly higher positions

Dissimilar inclusions:
- Poorly drained soils on the toeslopes of depressions

Properties and Qualities of the Adeland Soil

Parent material: Thin mantle of loess underlain by glacial till over residuum weathered from interbedded acid siltstone and shale
Depth to bedrock: 20 to 40 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 6.1 inches to a depth of 34 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

AbhAI—Adrian muck, 0 to 1 percent slopes, frequently flooded, long duration

Setting

Landform: Backswamps

Average Composition

Adrian and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with less than 16 inches of muck
- Soils with more than 51 inches of muck

Dissimilar inclusions:
- The poorly drained Sloan and Beaucoup soils on flood plains

Properties and Qualities of the Adrian Soil

Parent material: Organic material over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 15.7 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

AjaAI—Allison silt loam, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood plains

Average Composition

Allison and similar soils: 97 percent

Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Well drained soils in the higher positions
- Somewhat poorly drained soils in the lower positions
- Soils with a higher content of sand
- Soils with a mollic epipedon that is less than 24 inches thick

Dissimilar inclusions:
- The poorly drained Beaucoup soils in the lower positions

Properties and Qualities of the Allison Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 12.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ApkA—Angatoka silt loam, outwash substratum, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Average Composition

Angatoka and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 60 inches thick

Properties and Qualities of the Angatoka Soil

Parent material: Loess over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 11.6 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

AplA—Angatoka silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Angatoka and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a mollic epipedon
- Soils with outwash above the glacial till
- Moderately well drained soils in the slightly lower positions
- Soils with a mantle of loess that is less than 60 inches thick

Properties and Qualities of the Angatoka Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 11.6 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

AplB2—Angatoka silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains

Position on landform: Backslopes and shoulders

Average Composition

Angatoka and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- The somewhat poorly drained Yeddo soils on footslopes

Properties and Qualities of the Angatoka Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 11.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

ApIC2—Angatoka silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Angatoka and similar soils: 98 percent
Dissimilar inclusions: 2 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- Miami soils, which are moderately deep to dense glacial till; on shoulders

Properties and Qualities of the Angatoka Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 11.6 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

AzqA—Ayrshire loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces and dunes
Position on landform: Footslopes

Average Composition

Ayrshire and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with a surface layer of fine sandy loam or sandy loam

Dissimilar inclusions:
- The poorly drained Ragsdale soils on the toeslopes of depressions

Properties and Qualities of the Ayrshire Soil

Parent material: Eolian deposits
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.7 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

BcgAl—Battleground silt loam, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood plains adjacent to the Wabash River

Average Composition

Battleground and similar soils: 87 percent
Dissimilar inclusions: 13 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the lower positions
- Soils with a higher content of sand
- Soils that are free of carbonates to a depth of 40 inches or more
- Soils with a mollic epipedon that is more than 24 inches thick

Dissimilar inclusions:
- Pinevillage soils on structural benches above the Battleground soil
- Coarse textured soils on natural levees

Properties and Qualities of the Battleground Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 12.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

BhyA—Birkbeck silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Birkbeck and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Well drained soils in the higher positions
- Soils with less clay in the subsoil
- Somewhat poorly drained soils on footslopes
- Soils with a mantle of loess that is more than 60 inches thick

Dissimilar inclusions:
- The poorly drained Ragsdale soils on the toeslopes of drainageways and depressions

Properties and Qualities of the Birkbeck Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 11.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

BhyB2—Birkbeck silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Birkbeck and similar soils: 98 percent
Dissimilar inclusions: 2 percent

Inclusions

Similar inclusions:
- Well drained soils in the higher positions
- Somewhat poorly drained soils on footslopes
- Soils with a mantle of loess that is more than 60 inches thick

Dissimilar inclusions:
- The poorly drained Ragsdale soils on the toeslopes of drainageways

Properties and Qualities of the Birkbeck Soil

Parent material: Loess over glacial till

Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 11.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

BvlAK—Brouillett silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration

Setting

Landform: Flood plains

Average Composition

Brouillett and similar soils: 80 percent
Dissimilar inclusions: 20 percent

Inclusions

Similar inclusions:
- Soils with a lower content of sand
- Moderately well drained soils in the slightly higher positions

Dissimilar inclusions:
- The well drained Lash soils in the higher positions
- Poorly drained soils in the lower positions and in meander scars

Properties and Qualities of the Brouillett Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 10.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

CbaA—Camden silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains and till plains
Position on landform: Summits

Average Composition

Camden and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in positions similar to those of the Camden soil or in lower positions
- Soils underlain by gravelly outwash

Dissimilar inclusions:
- Soils underlain by dense glacial till; in positions similar to those of the Camden soil
- The somewhat poorly drained Starks soils on footslopes

Properties and Qualities of the Camden Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.8 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

CbaB2—Camden silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash plains and till plains
Position on landform: Backslopes and shoulders

Average Composition

Camden and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 24 inches thick
- Moderately well drained soils in positions similar to those of the Camden soil or in lower positions
- Soils underlain by gravelly outwash

Dissimilar inclusions:
- Soils underlain by dense glacial till; in positions similar to those of the Camden soil
- The somewhat poorly drained Starks soils on footslopes

Properties and Qualities of the Camden Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.8 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CfrG—Cates channery silt loam, 25 to 75 percent slopes

Setting

Landform: Scarps of structural benches underlain by sandstone and shale
Position on landform: Backslopes and shoulders

Average Composition

Cates and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the lower positions
- Soils that formed in shale residuum

Dissimilar inclusions:
- Narrow areas of soils on flood plains
- Soils that are very shallow to bedrock; in positions similar to those of the Cates soil

Properties and Qualities of the Cates Soil

Parent material: Residuum weathered from siltstone
Depth to bedrock: 20 to 40 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 36 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ChqA—Chalmers silty clay loam, 0 to 1 percent slopes

Setting

Landform: Flats and depressions on till plains
Position on landform: Toeslopes

Average Composition

Chalmers and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils underlain by loamy outwash
- Soils with a mantle of loess that is more than 40 inches thick

Properties and Qualities of the Chalmers Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 9.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section

- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CnaB—Coloma loamy sand, 2 to 6 percent slopes

Setting

Landform: Stream terraces
Position on landform: Backslopes

Average Composition

Coloma and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a mollic epipedon
- Soils with a higher content of clay

Properties and Qualities of the Coloma Soil

Parent material: Sandy eolian material reworked by water
Depth to bedrock: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 5.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CnaC—Coloma loamy sand, 6 to 15 percent slopes

Setting

Landform: Stream terraces
Position on landform: Backslopes

Average Composition

Coloma and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a higher content of clay
- Soils with a mollic epipedon

Properties and Qualities of the Coloma Soil

Parent material: Sandy eolian material reworked by water
Depth to bedrock: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CsuA—Crane silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces and outwash plains
Position on landform: Footslopes

Average Composition

Crane and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Soils with a solum that is more than 60 inches thick

Dissimilar inclusions:
- The well drained Wea soils on summits
- The poorly drained Westland soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Crane Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section

- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

CudA—Crosby silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes

Average Composition

Crosby and similar soils: 98 percent
Dissimilar inclusions: 2 percent

Inclusions

Similar inclusions:
- Soils underlain by loamy outwash
- Soils with a mantle of loess that is more than 22 inches thick
- The moderately well drained Williamstown soils on shoulders

Dissimilar inclusions:
- The poorly drained Treaty soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Crosby Soil

Parent material: Thin mantle of loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 7.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

DpbA—Drummer silty clay loam, 0 to 1 percent slopes

Setting

Landform: Flats and depressions on outwash plains
Position on landform: Toeslopes

Average Composition

Drummer and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 60 inches thick
- Somewhat poorly drained soils on summits and footslopes
- Soils underlain by gravelly outwash

Properties and Qualities of the Drummer Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 11.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

EcoA—Edwardsville silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes

Average Composition

Edwardsville and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the higher positions

Dissimilar inclusions:
- The poorly drained Ragsdale soils on toeslopes

Properties and Qualities of the Edwardsville Soil

Parent material: Loess
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained

Available water capacity: About 12.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

EdeAK—Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, brief duration

Setting

Landform: Flood plains

Average Composition

Eel and similar soils: 52 percent
Beckville and similar soils: 45 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with carbonates throughout
- Soils with a mollic epipedon
- The somewhat poorly drained Shoals soils in the lower positions

Dissimilar inclusions:
- Poorly drained soils in meander scars

Properties and Qualities of the Eel Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 10.9 inches to a depth of 60 inches

Properties and Qualities of the Beckville Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.8 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

EmdA—Elston sandy loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Average Composition

Elston and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a surface layer of coarse sandy loam, loam, or fine sandy loam

Properties and Qualities of the Elston Soil

Parent material: Loamy and sandy outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

EmdB—Elston sandy loam, 2 to 6 percent slopes

Setting

Landform: Stream terraces
Position on landform: Backslopes

Average Composition

Elston and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a surface layer of coarse sandy loam, loam, or fine sandy loam

Properties and Qualities of the Elston Soil

Parent material: Loamy and sandy outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

FamB—Fairpoint gravelly clay loam, 0 to 6 percent slopes

Setting

This soil is in areas disturbed by surface mining. These areas have been graded.

Average Composition

Fairpoint and similar soils: 100 percent

Properties and Qualities of the Fairpoint Soil

Parent material: Mine spoil
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

FdbA—Fincastle silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes

Average Composition

Fincastle and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- The moderately well drained Xenia soils on backslopes and shoulders
- Soils with a mantle of loess that is less than 22 inches thick

Dissimilar inclusions:
- The poorly drained Treaty soils on toeslopes

Properties and Qualities of the Fincastle Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.6 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

FdbB—Fincastle silt loam, 2 to 4 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes and backslopes

Average Composition

Fincastle and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 22 inches thick
- Moderately well drained soils in the higher positions on backslopes

Dissimilar inclusions:
- The poorly drained Treaty soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Fincastle Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.6 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

FdnA—Fincastle-Starks complex, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Fincastle and similar soils: 62 percent
Starks and similar soils: 35 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 40 inches thick
- Soils with a dark brown or darker surface layer
- Moderately well drained soils in the higher or more sloping areas

Dissimilar inclusions:
- The poorly drained Mahalasville and Treaty soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Fincastle Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.6 inches to a depth of 60 inches

Properties and Qualities of the Starks Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 11.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

GcaAK—Genesee soils, 0 to 2 percent slopes, occasionally flooded, brief duration

Setting

Landform: Natural levees

Average Composition

Genesee and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with surface layer of sandy loam or fine sandy loam
- Moderately well drained soils in the lower positions on flood plains
- Soils that have carbonates throughout

Dissimilar inclusions:
- The poorly drained Sloan soils in meander scars

Properties and Qualities of the Genesee Soils

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

JcfG—Judyville fine sandy loam, 25 to 70 percent slopes

Setting

Landform: Scarps of structural benches underlain by sandstone and shale
Position on landform: Backslopes and shoulders

Average Composition

Judyville and similar soils: 94 percent
Dissimilar inclusions: 6 percent

Inclusions

Dissimilar inclusions:
• Soils that are less than 20 inches deep over bedrock; on shoulders and backslopes
• Narrow areas of soils on flood plains

Properties and Qualities of the Judyville Soil

Parent material: Residuum weathered from sandstone
Depth to bedrock: 20 to 40 inches
Drainage class: Well drained
Available water capacity: About 4.6 inches to a depth of 34 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

KnqD2—Kendallville silt loam, 12 to 18 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Average Composition

Kendallville and similar soils: 96 percent
Dissimilar inclusions: 4 percent

Inclusions

Similar inclusions:
• Soils that have carbonates at a depth of more than 40 inches
• Soils with a solum that is more than 40 inches thick
• Soils that average more than 35 percent clay in the subsoil
Dissimilar inclusions:
• Severely eroded soils on backslopes

Properties and Qualities of the Kendallville Soil

Parent material: Thin mantle of loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LbrA—Lafayette silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Footslopes

Average Composition

Lafayette and similar soils: 88 percent
Dissimilar inclusions: 12 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 40 inches thick
• Soils in which the depth to gravelly outwash is more than 80 inches
Dissimilar inclusions:
• The well drained Waupecan soils on backslopes
• The poorly drained Mahalaland soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Lafayette Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LdxAK—Landes fine sandy loam, 0 to 2 percent slopes, occasionally flooded, brief duration

Setting

Landform: Natural levees

Average Composition

Landes and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
- Soils that do not have a mollic epipedon
- Moderately well drained soils in the lower positions on flood plains
- Soils with carbonates throughout

Dissimilar inclusions:
- The somewhat poorly drained Shoals soils in the lower positions
- The poorly drained Sloan soils in meander scars and backswamps

Properties and Qualities of the Landes Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.8 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LfuAI—Lash fine sandy loam, 0 to 2 percent slopes, frequently flooded, long duration

Setting

Landform: Flood plains

Average Composition

Lash and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils that do not have a mollic epipedon

Dissimilar inclusions:
- The poorly drained Sloan soils in meander scars and backswamps

Properties and Qualities of the Lash Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 7.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LfzB2—Lauramie silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Average Composition

Lauramie and similar soils: 92 percent
Dissimilar inclusions: 8 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
• Soils underlain by sand and gravel; in positions similar to those of the Lauramie soil
• Severely eroded soils in positions similar to those of the Lauramie soil

Properties and Qualities of the Lauramie Soil

Parent material: Loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LugA—Loudonville silt loam, 0 to 2 percent slopes

Setting

Landform: Structural benches
Position on landform: Summits

Average Composition

Loudonville and similar soils: 86 percent
Dissimilar inclusions: 14 percent

Inclusions

Dissimilar inclusions:
• Soils that are less than 20 inches deep over bedrock; in positions similar to those of the Loudonville soil
• Soils that are 60 to 80 inches deep over bedrock; on shoulders and backslopes

Properties and Qualities of the Loudonville Soil

Parent material: Glacial till over residuum weathered from sandstone or siltstone
Depth to bedrock: 20 to 40 inches
Drainage class: Well drained
Available water capacity: About 6.3 inches to a depth of 36 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LugB2—Loudonville silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Structural benches
Position on landform: Backslopes and shoulders

Average Composition

Loudonville and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Dissimilar inclusions:
• Soils that are less than 20 inches deep over bedrock; on summits
• Soils that are 60 to 80 inches deep over bedrock; in positions similar to those of the Loudonville soil
• Severely eroded soils on backslopes and shoulders

Properties and Qualities of the Loudonville Soil

Parent material: Glacial till over residuum weathered from sandstone or siltstone
Depth to bedrock: 20 to 40 inches
Drainage class: Well drained
Available water capacity: About 6.3 inches to a depth of 36 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section

- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LugC2—Loudonville silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Structural benches
Position on landform: Backslopes and shoulders

Average Composition

Loudonville and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Dissimilar inclusions:
- Soils that are less than 20 inches deep over bedrock; on summits
- Severely eroded soils on backslopes and shoulders
- Soils that are 60 to 80 inches deep over bedrock; in positions similar to those of the Loudonville soil

Properties and Qualities of the Loudonville Soil

Parent material: Glacial till over residuum weathered from sandstone or siltstone
Depth to bedrock: 20 to 40 inches
Drainage class: Well drained
Available water capacity: About 6.1 inches to a depth of 36 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

LuhC—Loudonville silt loam, 4 to 12 percent slopes, stony

Setting

Landform: Structural benches
Position on landform: Backslopes and shoulders

Average Composition

Londonville and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Dissimilar inclusions:
- The somewhat poorly drained Mitiwanga soils on footslopes
- Poorly drained soils on the toeslopes of drainageways
- Severely eroded soils on the steeper shoulders and backslopes

Properties and Qualities of the Loudonville Soil

Parent material: Glacial till over residuum weathered from sandstone or siltstone
Depth to bedrock: 20 to 40 inches
Drainage class: Well drained
Available water capacity: About 3.6 inches to a depth of 36 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MamA—Mahalasville silty clay loam, 0 to 1 percent slopes

Setting

Landform: Flats and depressions on outwash plains and in glacial drainage channels
Position on landform: Toeslopes

Average Composition

Mahalasville and similar soils: 100 percent

Inclusions

Similar inclusions:
- Pella soils in closed depressions
- Soils underlain by gravelly outwash
- Soils underlain by glacial till

Properties and Qualities of the Mahalasville Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained

Available water capacity: About 10.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MaoA—Mahalaland silty clay loam, 0 to 1 percent slopes

Setting

Landform: Flats and depressions on outwash plains
Position on landform: Toeslopes

Average Composition

Mahalaland and similar soils: 94 percent
Dissimilar inclusions: 6 percent

Inclusions

Similar inclusions:
- Very poorly drained soils in closed depressions
- Soils underlain by glacial till
- Somewhat poorly drained soils on summits

Dissimilar inclusions:
- The well drained Waupecan soils on summits

Properties and Qualities of the Mahalaland Soil

Parent material: Loess underlain by loamy outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MapA—Mahalasville silty clay loam, bedrock substratum, 0 to 1 percent slopes

Setting

Landform: Flats and depressions on structural benches and stream terraces
Position on landform: Toeslopes

Average Composition

Mahalasville, bedrock substratum, and similar soils: 100 percent

Properties and Qualities of the Mahalasville Soil

Parent material: Loess underlain by loamy outwash over residuum weathered from sandstone or siltstone
Depth to bedrock: 40 to 60 inches
Drainage class: Poorly drained
Available water capacity: About 10.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MecB2—Martinsville loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash plains and till plains
Position on landform: Summits and backslopes

Average Composition

Martinsville and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- The moderately well drained Rainsville soils in

positions on the landscape similar to those of the Martinsville soil
Dissimilar inclusions:
• Somewhat poorly drained soils on footslopes
• Severely eroded soils on backslopes
• The poorly drained Rensselaer soils on the toeslopes of drainageways

Properties and Qualities of the Martinsville Soil

Parent material: Loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MjuA—Mellott silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Mellott and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
• Moderately well drained soils in the slightly lower positions
Dissimilar inclusions:
• The somewhat poorly drained Toronto soils in the lower positions

Properties and Qualities of the Mellott Soil

Parent material: Loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MqlG—Minnehaha silt loam, 35 to 75 percent slopes

Setting

This soil is in areas disturbed by surface mining. These areas may have been graded, but they are not reclaimed.

Average Composition

Minnehaha and similar soils: 100 percent

Properties and Qualities of the Minnehaha Soil

Parent material: Mine spoil
Depth to bedrock: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.7 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

MrcA—Mitiwanga silt loam, 0 to 2 percent slopes

Setting

Landform: Structural benches and strath terraces
Position on landform: Footslopes

Average Composition

Mitiwanga and similar soils: 76 percent
Dissimilar inclusions: 24 percent

Inclusions

Dissimilar inclusions:
• The well drained Loudonville soils in the higher positions
• The well drained Ockley soils on the footslopes of stream terraces
• Poorly drained soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Mitiwanga Soil

Parent material: Thin mantle of silty material underlain by glacial till over residuum weathered from sandstone and shale
Depth to bedrock: 20 to 40 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 6.2 inches to a depth of 33 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ObmB2—Octagon silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Octagon and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 18 inches thick
• Soils with a mollic epipedon
Dissimilar inclusions:
• Severely eroded soils on shoulders
• Poorly drained soils on the toeslopes of drainageways

Properties and Qualities of the Octagon Soil

Parent material: Thin mantle of loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 6.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ObmC2—Octagon silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes

Average Composition

Octagon and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 18 inches thick
• Soils with a mollic epipedon
Dissimilar inclusions:
• Severely eroded soils on shoulders and backslopes
• Poorly drained soils on the toeslopes of drainageways

Properties and Qualities of the Octagon Soil

Parent material: Thin mantle of loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 6.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section

- “Engineering” and “Soil Properties” sections

ObxA—Ockley silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Average Composition

Ockley and similar soils: 93 percent
Dissimilar inclusions: 7 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 20 inches thick
• Soils with loamy outwash to a depth of more than 60 inches
• Soils with a dark brown or darker surface layer
• Moderately well drained soils in the lower positions
Dissimilar inclusions:
• Soils underlain by dense glacial till; in positions similar to those of the Ockley soil
• Poorly drained soils on the toeslopes of drainageways

Properties and Qualities of the Ockley Soil

Parent material: Thin mantle of loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section (fig. 3)
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ObxB2—Ockley silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Summits and backslopes

Average Composition

Ockley and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 20 inches thick
• Soils with loamy outwash to a depth of more than 60 inches
• Soils that have a dark brown or darker surface layer
• Moderately well drained soils in the lower positions
Dissimilar inclusions:
• Soils underlain by dense glacial till; in positions similar to those of the Ockley soil
• Severely eroded soils on shoulders
• Poorly drained soils on the toeslopes of drainageways

Properties and Qualities of the Ockley Soil

Parent material: Thin mantle of loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ObxC2—Ockley silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Backslopes and shoulders

Average Composition

Ockley and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Figure 3.—Hayfield in an area of Ockley silt loam, 0 to 2 percent slopes.

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 20 inches thick
• Soils underlain by loamy outwash
• Soils with a dark brown or darker surface layer
Dissimilar inclusions:
• Soils underlain by dense glacial till; in positions similar to those of the Ockley soil
• Severely eroded soils on shoulders
• Poorly drained soils on the toeslopes of drainageways
• Soils underlain by bedrock; in positions similar to those of the Ockley soil

Properties and Qualities of the Ockley Soil

Parent material: Thin mantle of loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ObxD2—Ockley silt loam, 12 to 18 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Backslopes and shoulders

Average Composition

Ockley and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 20 inches thick
• Soils with loamy outwash to a depth of more than 60 inches

• Soils with a dark brown or darker surface layer
Dissimilar inclusions:
• Soils underlain by dense glacial till; in positions similar to those of the Ockley soil
• Severely eroded soils on shoulders
• Poorly drained soils on the toeslopes of drainageways

Properties and Qualities of the Ockley Soil

Parent material: Thin mantle of loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

Pg—Pits, gravel

Setting

This map unit is in areas from which sand and gravel have been removed.

Average Composition

Pits, gravel, and similar areas: 100 percent

Management

Onsite investigation is needed to determine site characteristics and management requirements.

PgaA—Pella silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions on outwash plains and till plains
Position on landform: Toeslopes

Average Composition

Pella and similar soils: 100 percent

Inclusions

Similar inclusions:
• Soils underlain by glacial till

Properties and Qualities of the Pella Soil

Parent material: Loess or other silty material over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 9.7 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

PnwBQ—Pinevillage gravelly sandy loam, 2 to 8 percent slopes, rarely flooded

Setting

Landform: Alluvial fans, flood plains, and structural benches
Position on landform: Backslopes

Average Composition

Pinevillage and similar soils: 100 percent

Properties and Qualities of the Pinevillage Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 5.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section

- “Engineering” and “Soil Properties” sections

PvsA—Princeton fine sandy loam, 0 to 2 percent slopes

Setting

Landform: Dunes
Position on landform: Summits

Average Composition

Princeton and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with a dark brown or darker surface layer
- Soils with more sand in the upper part of the subsoil

Dissimilar inclusions:
- The somewhat poorly drained Ayrshire soils on footslopes

Properties and Qualities of the Princeton Soil

Parent material: Eolian silt and fine sand
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

PvsB2—Princeton fine sandy loam, 2 to 6 percent slopes, eroded

Setting

Landform: Dunes
Position on landform: Backslopes and shoulders

Average Composition

Princeton and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with more sand in the upper part of the subsoil
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- Severely eroded soils in positions similar to those of the Princeton soil

Properties and Qualities of the Princeton Soil

Parent material: Eolian silt and fine sand
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section (fig. 4)
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

PvsC2—Princeton fine sandy loam, 6 to 12 percent slopes, eroded

Setting

Landform: Dunes
Position on landform: Backslopes and shoulders

Average Composition

Princeton and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with more sand in the upper part of the subsoil

Dissimilar inclusions:
- Severely eroded soils in positions similar to those of the Princeton soil

Properties and Qualities of the Princeton Soil

Parent material: Eolian silt and fine sand
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Figure 4.—Erosion in an area of Princeton fine sandy loam, 2 to 6 percent slopes, eroded.

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RbfA—Ragsdale silty clay loam, 0 to 1 percent slopes

Setting

Landform: Flats and depressions on till plains
Position on landform: Toeslopes

Average Composition

Ragsdale and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 60 inches thick
- Soils underlain by loamy outwash
- Somewhat poorly drained soils in the slightly higher positions

Properties and Qualities of the Ragsdale Soil

Parent material: Loess
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 11.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RbuB2—Rainsville silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Rainsville and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 20 inches thick
- Well drained soils in the higher positions
- Soils that formed entirely in glacial till
- Soils in which the depth to glacial till is more than 50 inches
- Soils with a solum that is more than 60 inches thick
- Soils that formed entirely in gravelly outwash
- Somewhat poorly drained soils on footslopes

Dissimilar inclusions:
- Severely eroded soils on shoulders

Properties and Qualities of the Rainsville Soil

Parent material: Thin mantle of loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RbuC2—Rainsville silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Average Composition

Rainsville and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 20 inches thick
- Well drained soils in the higher positions
- Soils that formed entirely in glacial till
- Soils in which the depth to glacial till is more than 50 inches
- Soils with a solum that is more than 60 inches thick
- Somewhat poorly drained soils on footslopes

Dissimilar inclusions:
- Severely eroded soils on shoulders

Properties and Qualities of the Rainsville Soil

Parent material: Thin mantle of loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RdvA—Raub silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes and summits

Average Composition

Raub and similar soils: 93 percent
Dissimilar inclusions: 7 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 40 inches thick
- Soils that formed in loamy outwash over glacial till

Dissimilar inclusions:
- The poorly drained Chalmers soils on toeslopes

Properties and Qualities of the Raub Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 10.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RetA—Rensselaer silty clay loam, 0 to 1 percent slopes

Setting

Landform: Flats and drainageways on outwash plains and in glacial drainage channels
Position on landform: Toeslopes

Average Composition

Rensselaer and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Dissimilar inclusions:
• Soils with a higher content of clay; on the toeslopes of depressions

Properties and Qualities of the Rensselaer Soil

Parent material: Loamy outwash over sandy outwash
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 11.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

RosAK—Rockmill silt loam, 0 to 1 percent slopes, occasionally flooded, brief duration

Setting

Landform: Flood plains, meander scars, and depressions on uplands
Position on landform: Toeslopes

Average Composition

Rockmill and similar soils: 100 percent

Inclusions

Similar inclusions:
• Soils with mineral material that is more than 40 inches thick
• Soils with a mineral surface layer that is less than 16 inches thick

Properties and Qualities of the Rockmill Soil

Parent material: Alluvium over organic material
Depth to bedrock: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 19.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

RqaE—Rodman sandy loam, 18 to 25 percent slopes

Setting

Landform: Stream terraces
Position on landform: Backslopes

Average Composition

Rodman and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
• Soils with less than 35 percent gravel in the lower part
• Soils with more clay throughout
Dissimilar inclusions:
• Narrow areas of the moderately well drained Eel and Beckville soils on flood plains

Properties and Qualities of the Rodman Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RqaG—Rodman sandy loam, 25 to 50 percent slopes

Setting

Landform: Stream terraces
Position on landform: Backslopes

Average Composition

Rodman and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Soils with less than 35 percent gravel in the lower part
- Soils with more clay throughout

Dissimilar inclusions:
- Narrow areas of the moderately well drained Eel and Beckville soils on flood plains

Properties and Qualities of the Rodman Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RtxAK—Rossburg silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration

Setting

Landform: Flood plains

Average Composition

Rossburg and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils that do not have a mollic epipedon
- Soils that have a higher content of sand throughout
- Soils with a mollic epipedon that is more than 24 inches thick
- Soils that have carbonates throughout

Properties and Qualities of the Rossburg Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RuxA—Raub-Brenton complex, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes

Average Composition

Raub and similar soils: 56 percent
Brenton and similar soils: 36 percent
Dissimilar inclusions: 8 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 40 inches thick
- Soils with gravelly outwash in the lower part

Dissimilar inclusions:
- The poorly drained Chalmers and Drummer soils on toeslopes

Properties and Qualities of the Raub Soil

Parent material: Loess over glacial till

Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 10.4 inches to a depth of 60 inches

Properties and Qualities of the Brenton Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 10.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RyfA—Rush silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Summits

Average Composition

Rush and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 24 inches thick
- Soils with a mantle of loess that is more than 40 inches thick
- Soils with a mollic epipedon
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- Martinsville soils, which formed entirely in loamy outwash; in the slightly higher positions
- The poorly drained Mahalaland soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Rush Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RyfB2—Rush silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash plains
Position on landform: Summits and backslopes

Average Composition

Rush and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 24 inches thick
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- The poorly drained Mahalaland soils on the toeslopes of depressions and drainageways

Properties and Qualities of the Rush Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RywB2—Russell silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Russell and similar soils: 94 percent
Dissimilar inclusions: 6 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is less than 20 inches thick
• Soils with a mantle of loess that is more than 40 inches thick
• Soils that formed entirely in loess; in areas where the mantle of loess is more than 80 inches thick
• Soils with a higher content of sand
• Moderately well drained soils in the less sloping areas
Dissimilar inclusions:
• Severely eroded soils in positions similar to those of the Russell soil
• The somewhat poorly drained Fincastle soils on backslopes
• The poorly drained Ragsdale soils on the toeslopes of drainageways

Properties and Qualities of the Russell Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RywC2—Russell silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Russell and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is less than 20 inches thick
• Soils with a mantle of loess that is more than 40 inches thick
• Soils that formed entirely in loess; in areas where the mantle of loess is more than 80 inches thick
• Soils with a higher content of sand
• Moderately well drained soils in the less sloping areas
Dissimilar inclusions:
• Severely eroded soils in positions similar to those of the Russell soil

Properties and Qualities of the Russell Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RywD2—Russell silt loam, 12 to 18 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Russell and similar soils: 87 percent
Dissimilar inclusions: 13 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is less than 20 inches thick

• Soils with a mantle of loess that is more than 40 inches thick
• Soils that formed entirely in loess; in areas where the mantle of loess is more than 80 inches thick
• Soils with a higher content of sand

Dissimilar inclusions:
• Strawn soils, which are shallow to dense glacial till; on the steeper slopes
• Severely eroded soils on backslopes

Properties and Qualities of the Russell Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

RzcE—Russell-Strawn complex, 18 to 25 percent slopes

Setting

Landform: Till plains
Position on landform: Backslopes

Average Composition

Russell and similar soils: 50 percent
Strawn and similar soils: 50 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 40 inches thick
• Soils that formed entirely in loess; in areas where the mantle of loess is more than 80 inches thick
• Soils with a higher content of sand
• Moderately well drained soils on the less sloping backslopes

Properties and Qualities of the Russell Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.7 inches to a depth of 60 inches

Properties and Qualities of the Strawn Soil

Parent material: Glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SldAK—Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration

Setting

Landform: Flood plains

Average Composition

Shoals and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
• Soils that have less clay in the subsoil
• Soils that have more silt in the subsoil
• Soils that have a mollic epipedon

Dissimilar inclusions:
• The poorly drained Sloan soils in the lower positions

Properties and Qualities of the Shoals Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 11.5 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section

- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SlyA—Silverwood silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Average Composition

Silverwood and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a solum that is less than 40 inches thick
- Soils with less than 20 percent gravel in the lower part
- Soils with a surface layer of loam
- Soils with a mollic epipedon

Dissimilar inclusions:
- The somewhat poorly drained Sleeth soils on the lower summits

Properties and Qualities of the Silverwood Soil

Parent material: Thin mantle of silty material underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SlyB2—Silverwood silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Summits and backslopes

Average Composition

Silverwood and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Soils with a solum that is less than 40 inches thick
- Soils with less than 20 percent gravel in the lower part
- Soils with a surface layer of loam

Dissimilar inclusions:
- Severely eroded soils on backslopes

Properties and Qualities of the Silverwood Soil

Parent material: Thin mantle of silty material underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SlzA—Silverwood loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Average Composition

Silverwood and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a solum that is less than 40 inches thick
- Soils with less than 20 percent gravel in the lower part
- Soils with a surface layer of silt loam
- Soils with a mollic epipedon

Dissimilar inclusions:
• The somewhat poorly drained Sleeth on the lower summits

Properties and Qualities of the Silverwood Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SlzB2—Silverwood loam, 2 to 6 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Summits and backslopes

Average Composition

Silverwood and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
• Soils having a solum that is less than 40 inches thick
• Soils with less than 20 percent gravel in the lower part
• Soils with a surface layer of silt loam
• Soils with a mollic epipedon
Dissimilar inclusions:
• Severely eroded soils on backslopes

Properties and Qualities of the Silverwood Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SlzC2—Silverwood loam, 6 to 12 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Backslopes and shoulders

Average Composition

Silverwood and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
• Soils with a solum that is less than 40 inches thick
• Soils with less than 20 percent gravel in the lower part
Dissimilar inclusions:
• Severely eroded soils on shoulders and backslopes

Properties and Qualities of the Silverwood Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SlzD2—Silverwood loam, 12 to 18 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Backslopes and shoulders

Average Composition

Silverwood and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Soils with a solum that is less than 40 inches thick
- Soils with less than 20 percent gravel in the lower part

Dissimilar inclusions:
- Severely eroded soils on backslopes

Properties and Qualities of the Silverwood Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 6.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

SngA—Sleeth silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Average Composition

Sleeth and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 20 inches thick
- Soils underlain by glacial till
- Moderately well drained soils in the higher positions

Dissimilar inclusions:
- The poorly drained Mahalasville soils on the toeslopes of depressions

Properties and Qualities of the Sleeth Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

SnlAP—Southwest silt loam, 0 to 1 percent slopes, ponded, brief duration

Setting

Landform: Depressions on till plains
Position on landform: Toeslopes

Average Composition

Southwest and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with less than 20 inches of alluvium
- Soils underlain by outwash

Properties and Qualities of the Southwest Soil

Parent material: Alluvium over glaciolacustrine deposits
Ponding: Frequent
Drainage class: Poorly drained
Depth to bedrock: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SobAI—Sloan and Beaucoup soils, 0 to 1 percent slopes, frequently flooded, long duration

Setting

Landform: Backswamps and meander scars

Average Composition

Sloan and similar soils: 60 percent
Beaucoup and similar soils: 40 percent

Inclusions

Similar inclusions:
- Soils with a higher content of clay
- Soils with a mollic epipedon that is more than 24 inches thick
- Somewhat poorly drained soils in the higher positions
- Soils with carbonates throughout

Properties and Qualities of the Sloan Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 10.3 inches to a depth of 60 inches

Properties and Qualities of the Beaucoup Soil

Parent material: Alluvium
Depth to bedrock: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 11.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SseB2—St. Charles silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash plains and till plains
Position on landform: Backslopes and shoulders

Average Composition

St. Charles and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 40 inches thick
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- Rush soils, which are very gravelly or extremely gravelly in the lower part; in positions similar to those of the St. Charles soil

Properties and Qualities of the St. Charles Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 11.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SteA—Starks silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Starks and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Moderately well drained soils in the higher positions

Dissimilar inclusions:
- The poorly drained Mahalasville on toeslopes

Properties and Qualities of the Starks Soil

Parent material: Loess over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 11.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SvqE—Strawn loam, 18 to 25 percent slopes

Setting

Landform: Till plains
Position on landform: Backslopes

Average Composition

Strawn and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess
- Soils with a higher content of sand
- Soils with a solum that is less than 16 inches thick

Dissimilar inclusions:
- Narrow areas of soils on flood plains
- Severely eroded soils on backslopes

Properties and Qualities of the Strawn Soil

Parent material: Glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SvqG—Strawn loam, 25 to 70 percent slopes

Setting

Landform: Till plains
Position on landform: Backslopes

Average Composition

Strawn and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess
- Soils with higher content of sand
- Soils with a solum that is less than 16 inches thick

Dissimilar inclusions:
- Narrow areas of soils on flood plains
- The moderately well drained Birkbeck soils on gently sloping summits above the Strawn soil

Properties and Qualities of the Strawn Soil

Parent material: Glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

SwdE—Strawn-Rodman complex, 18 to 25 percent slopes

Setting

Landform: Till plains and stream terraces
Position on landform: Backslopes

Average Composition

Strawn and similar soils: 75 percent
Rodman and similar soils: 25 percent

Inclusions

Soils similar to the Strawn soil:
- Soils with a solum that is more than 24 inches thick

Soils similar to the Rodman soil:
- Soils with a solum that is less than 10 inches thick

Properties and Qualities of the Strawn Soil

Parent material: Glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches

Properties and Qualities of the Rodman Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

SwdG—Strawn-Rodman complex, 25 to 50 percent slopes

Setting

Landform: Till plains and stream terraces
Position on landform: Backslopes

Average Composition

Strawn and similar soils: 75 percent
Rodman and similar soils: 25 percent

Inclusions

Soils similar to the Strawn soil:
- Soils with a solum that is more than 24 inches thick

Soils similar to the Rodman soil:
- Soils with a solum that is less than 10 inches thick

Properties and Qualities of the Strawn Soil

Parent material: Glacial till
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.1 inches to a depth of 60 inches

Properties and Qualities of the Rodman Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

TfdA—Throckmorton silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Throckmorton and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Soils with a brown or lighter colored surface layer
- Soils with a mollic epipedon that is more than 10 inches thick
- Soils with a mantle of loess that is less than 24 inches thick
- Soils that are more than 80 inches deep to glacial till

Dissimilar inclusions:
- The poorly drained Drummer soils on toeslopes

Properties and Qualities of the Throckmorton Soil

Parent material: Loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches

Drainage class: Moderately well drained
Available water capacity: About 9.7 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

TfdB—Throckmorton silt loam, 2 to 4 percent slopes

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Throckmorton and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a brown or lighter colored surface layer
- Soils with a mollic epipedon that is more than 10 inches thick
- Soils with a mantle of loess that is less than 24 inches thick
- Soils that are more than 80 inches deep to glacial till

Dissimilar inclusions:
- The poorly drained Drummer soils on toeslopes

Properties and Qualities of the Throckmorton Soil

Parent material: Loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

ThrA—Treaty silty clay loam, 0 to 1 percent slopes

Setting

Landform: Flats and depressions on till plains
Position on landform: Toeslopes

Average Composition

Treaty and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils underlain by stratified loamy outwash
- Soils with a mantle of loess that is more than 40 inches thick
- Soils with a surface layer that is lighter colored than dark brown
- Soils with a mantle of loess that is less than 24 inches thick
- Somewhat poorly drained soils in the higher positions

Dissimilar inclusions:
- Soils underlain by sand and gravel
- The somewhat poorly drained Crosby and Finscastle soils, which are deep to dense glacial till; in the higher positions

Properties and Qualities of the Treaty Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 10.4 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

TlxA—Toronto silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Toronto and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mollic epipedon
- Soils with a higher content of sand

Dissimilar inclusions:
- The poorly drained Treaty soils on the toeslopes of depressions

Properties and Qualities of the Toronto Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 10.6 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

TmcA—Totanang silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Summits

Average Composition

Totanang and similar soils: 87 percent
Dissimilar inclusions: 13 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 60 inches thick
- Somewhat poorly drained soils
- Well drained soils in the higher positions
- Soils with less than 15 percent gravel in the lower part

Dissimilar inclusions:
- Poorly drained soils on the toeslopes of depressions
- Soils underlain by dense glacial till; in positions similar to those of the Totanang soil

Properties and Qualities of the Totanang Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 10.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

UbyE—Udorthents, loamy, 3 to 30 percent slopes

These soils are on highway ramps and dams and in excavations.

Because of extreme variability, no soil series is representative of these soils. Generally, the soils consist of mixed loamy soil material. Included in this unit are fills for highway interchanges, spillways, earthen dams, and other areas where soil material of varying thickness has been removed or added.

Average Composition

Udorthents, loamy, and similar soils: 100 percent

Management

Onsite investigation is needed to determine site characteristics and management requirements.

Uea—Urban land

Areas of this map unit are covered by dwellings and other buildings, roads, streets, parking lots, and lawns and gardens. Because the land is so altered and obscured by public works and structures, no identifiable soil series is representative of these areas.

Average Composition

Urban land and similar miscellaneous areas: 100 percent

Management

Onsite investigation is needed to determine site characteristics and management requirements.

WkmA—Waupecan silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Summits

Average Composition

Waupecan and similar soils: 87 percent
Dissimilar inclusions: 13 percent

Inclusions

Similar inclusions:
- Soils with a dark surface layer that is less than 10 inches thick
- Soils with a mantle of loess that is less than 24 inches thick
- Soils with a mantle of loess that is more than 48 inches thick
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- Soils underlain by dense glacial till; in positions similar to those of the Waupecan soil
- Poorly drained soils on the toeslopes of depressions

Properties and Qualities of the Waupecan Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section (fig. 5)
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WkmB2—Waupecan silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Outwash plains
Position on landform: Backslopes, shoulders, and summits

Average Composition

Waupecan and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Soils with a dark surface layer that is less than 10 inches thick
- Soils with a mantle of loess that is less than 24 inches thick
- Soils with a mantle of loess that is more than 48 inches thick
- Moderately well drained soils in the lower positions

Dissimilar inclusions:
- The somewhat poorly drained Lafayette soils in the lower positions
- Severely eroded soils on shoulders and backslopes

Properties and Qualities of the Waupecan Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WmnA—Waynetown silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Footslopes

Figure 5.—Hayfield in an area of Waupecan silt loam, 0 to 2 percent slopes.

Average Composition

Waynetown and similar soils: 85 percent
Dissimilar inclusions: 15 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 40 inches thick
- Soils with less than 15 percent gravel in the lower part

Dissimilar inclusions:
- Soils underlain by dense glacial till; in positions similar to those of the Waynetown soil
- The poorly drained Mahalaland soils on toeslopes

Properties and Qualities of the Waynetown Soil

Parent material: Loess underlain by loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.9 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WmpA—Wea loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on landform: Summits

Average Composition

Wea and similar soils: 100 percent

Inclusions

Similar inclusions:
- Soils with a solum that is less than 40 inches thick
- Soils that do not have a mollic epipedon
- Soils that have less than 15 percent gravel in the lower part

Properties and Qualities of the Wea Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

WmpB2—Wea loam, 2 to 6 percent slopes, eroded

Setting

Landform: Stream terraces
Position on landform: Backslopes and shoulders

Average Composition

Wea and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a solum that is less than 40 inches thick
- Soils with a brown surface layer
- Soils with less than 15 percent gravel in the lower part

Dissimilar inclusions:
- Severely eroded soils on backslopes

Properties and Qualities of the Wea Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

WqvA—Westland silty clay loam, 0 to 1 percent slopes

Setting

Landform: Depressions on stream terraces
Position on landform: Toeslopes

Average Composition

Westland and similar soils: 98 percent
Dissimilar inclusions: 2 percent

Inclusions

Similar inclusions:
- Soils underlain by loamy outwash
- Soils with a higher content of clay
- Soils with solum that is less than 40 inches thick

Dissimilar inclusions:
- Soils underlain by bedrock; in positions similar to those of the Westland soil

Properties and Qualities of the Westland Soil

Parent material: Loamy and gravelly outwash over sandy and gravelly outwash
Depth to bedrock: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 9.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- "Agronomy" section
- "Forestland" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

WsuA—Whitaker loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Footslopes

Average Composition

Whitaker and similar soils: 93 percent
Dissimilar inclusions: 7 percent

Inclusions

Similar inclusions:
• Soils with silty sediments that are more than 20 inches thick
• Soils underlain by gravelly outwash
• Moderately well drained soils in the higher positions
Dissimilar inclusions:
• The poorly drained Rensselaer soils on toeslopes
• Crosby soils, which are moderately deep to dense glacial till; in positions similar to those of the Whitaker soil

Properties and Qualities of the Whitaker Soil

Parent material: Loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 11.3 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WtaA—Whitaker silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plains
Position on landform: Footslopes

Average Composition

Whitaker and similar soils: 93 percent
Dissimilar inclusions: 7 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 20 inches thick
• Soils underlain by gravelly outwash
• Moderately well drained soils in the higher or more sloping areas
Dissimilar inclusions:
• The poorly drained Rensselaer soils on toeslopes
• Crosby soils, which are moderately deep to dense glacial till; in positions similar to those of the Whitaker soil

Properties and Qualities of the Whitaker Soil

Parent material: Thin mantle of silty material over loamy outwash
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 11.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WufB2—Williamstown silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Shoulders and backslopes

Average Composition

Williamstown and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 22 inches thick
• Well drained soils in the higher or more sloping areas
• Soils underlain by loamy outwash
• Somewhat poorly drained soils in the slightly lower positions

Dissimilar inclusions:
• The poorly drained Treaty soils on the toeslopes of depressions

Properties and Qualities of the Williamstown Soil

Parent material: Thin mantle of loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 6.8 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WvaA—Wingate silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Wingate and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 40 inches thick
• Soils a mollic epipedon
• Somewhat poorly drained soils in the slightly lower positions
• Well drained soils in the higher positions
• Soils underlain by loamy outwash
Dissimilar inclusions:
• The poorly drained Treaty soils on the toeslopes of depressions

Properties and Qualities of the Wingate Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 10.2 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

WvaB2—Wingate silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Wingate and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 40 inches thick
• Soils with a mollic epipedon
• Well drained soils in the higher positions
Dissimilar inclusions:
• Severely eroded soils on backslopes and shoulders

Properties and Qualities of the Wingate Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 12.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

XabA—Xenia silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Summits

Average Composition

Xenia and similar soils: 97 percent
Dissimilar inclusions: 3 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 22 inches thick
- Soils with a mantle of loess that is more than 40 inches thick
- Well drained soils in the higher positions

Dissimilar inclusions:
- The poorly drained Treaty soils on the toeslopes of depressions

Properties and Qualities of the Xenia Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.8 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

XabB2—Xenia silt loam, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Xenia and similar soils: 95 percent
Dissimilar inclusions: 5 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is less than 22 inches thick
- Soils with a mantle of loess that is more than 40 inches thick
- Well drained soils in the higher positions
- Somewhat poorly drained soils in the lower positions

Dissimilar inclusions:
- Severely eroded soils on backslopes and shoulders
- The poorly drained Treaty soils on the toeslopes of drainageways

Properties and Qualities of the Xenia Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.6 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

XfuB2—Miami-Rainsville complex, 2 to 6 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Miami and similar soils: 60 percent
Rainsville and similar soils: 30 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Soils with a mantle of loess that is more than 20 inches thick
- Well drained soils in the higher positions
- Soils that are more than 50 inches deep to glacial till

Dissimilar inclusions:
• The somewhat poorly drained Crosby and Fincastle soils in the lower positions
• Severely eroded soils on backslopes and shoulders
• The poorly drained Treaty soils on the toeslopes of drainageways

Properties and Qualities of the Miami Soil

Parent material: Thin mantle of loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 6.8 inches to a depth of 60 inches

Properties and Qualities of the Rainsville Soil

Parent material: Thin mantle of loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.1 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

XfuC2—Miami-Rainsville complex, 6 to 12 percent slopes, eroded

Setting

Landform: Till plains
Position on landform: Backslopes and shoulders

Average Composition

Miami and similar soils: 65 percent
Rainsville and similar soils: 25 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
• Soils with a mantle of loess that is more than 20 inches thick
• Soils that are more than 50 inches deep to glacial till
• Well drained soils in the higher positions

Dissimilar inclusions:
• The somewhat poorly drained Fincastle and Crosby soils in the lower positions
• Severely eroded soils on backslopes and shoulders
• The poorly drained Treaty soils on the toeslopes of drainageways

Properties and Qualities of the Miami Soil

Parent material: Thin mantle of loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 8.3 inches to a depth of 60 inches

Properties and Qualities of the Rainsville Soil

Parent material: Thin mantle of loess underlain by glaciofluvial deposits over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.0 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

YedA—Yeddo silt loam, 0 to 2 percent slopes

Setting

Landform: Till plains
Position on landform: Footslopes

Average Composition

Yeddo and similar soils: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
• Moderately well drained soils in the higher positions
• Soils with a mantle of loess that is less than 60 inches thick
• Soils with a mollic epipedon

Dissimilar inclusions:
- The moderately well drained Birkbeck soils in the higher positions
- The poorly drained Ragsdale soils on toeslopes

Properties and Qualities of the Yeddo Soil

Parent material: Loess over glacial till
Depth to bedrock: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 10.8 inches to a depth of 60 inches

Management

For general and detailed information about managing this map unit, see the following sections of this publication:

- “Agronomy” section
- “Forestland” section
- “Recreation” section
- “Wildlife Habitat” section
- “Engineering” and “Soil Properties” sections

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 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.

Agronomy

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; the estimated yields of the main crops and hay and pasture plants are listed for each soil; and prime farmland is described. Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

A total of 195,701 acres in Fountain County (about 77 percent of the total land acreage) was used as cropland in 1997 (Gann and Liles, 1998-1999). Of this acreage, about 177,202 acres, or 70 percent of the total land acreage, was used for row crops, mainly corn, soybeans, and wheat. About 18,499, or 7 percent of the total land acreage, was used for hay and pasture.

The soils and climate of the survey area are well suited to most of the crops that are commonly grown in the county and to some specialty crops. The potential of the soils for increased crop production is good. Food production can be increased by extending the latest crop production technology to all of the cropland in the county. This soil survey can help to facilitate the application of such technology.

The paragraphs that follow describe the main management concerns affecting the use of the soils in the county for crops and pasture. These concerns are wetness, water erosion, tilth, and fertility.

Wetness is the major management concern on about 55 percent of the land in the county. On most of the naturally wet, poorly drained or very poorly drained Adrian, Beaucoup, Chalmers, Drummer, Mahalaland, Mahalasville, Pella, Ragsdale (fig. 6), Rensselaer, Rockmill, Sloan, Southwest, Treaty, and Westland soils, production of the crops commonly grown in the county is generally not practical in many years unless a drainage system is installed. Also, in undrained areas of the somewhat poorly drained Adeland, Ayrshire, Brenton, Brouillett, Crane, Crosby, Fincastle, Lafayette, Mitiwanga, Raub, Shoals, Sleeth, Starks, Toronto, Waynetown, Whitaker, and Yeddo soils, wetness significantly damages crops in many years.

Various land use regulations of Federal, State, and local governments may impose special restrictions on the use of soils. An example is the protection of wetlands. Statements made in this section about wetness are intended to help the land user reduce the effects of wetness. The landowner or user has the responsibility of identifying and complying with existing laws and regulations.

The design of both surface and subsurface drainage systems varies with the kind of soil. A combination of surface and subsurface drains is needed on some soils that are row cropped. Subsurface drains should be more closely spaced in slowly permeable or very slowly permeable soils than in more permeable soils. Filtering material is generally needed in subsurface drains in soils that have minimum grades and a high content of silt. Finding adequate outlets for subsurface drainage systems is difficult in some areas.

Further information about the design of drainage systems for each kind of soil is in the Field Office

Figure 6.—Ponding in an area of Ragsdale silty clay loam, 0 to 1 percent slopes.

Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Water erosion is a hazard on about 25 percent of the land in the county. Generally, it is a hazard in areas where the slope is more than about 2 percent.

Loss of the surface layer through erosion is damaging for two main reasons. First, productivity is reduced as fertilizer, pesticides, herbicides, and organic matter are removed from the surface layer. The natural tilth of some soils, such as Miami and Octagon soils, is reduced as the more clayey subsoil is incorporated into the surface layer. Seedbed preparation becomes more difficult, and seed germination is hindered. Loss of the surface layer is especially damaging to soils that are shallow or moderately deep to coarse textured material, dense glacial till, or bedrock. The root zone in these soils consists largely of the part of the profile above these limiting layers. As the surface layer is lost, the thickness of the root zone and the available water capacity are reduced. Ockley and Silverwood soils are deep to coarse textured material, and Rodman soils are shallow to coarse textured material. Crosby and Miami soils have dense glacial till within 40 inches of the surface. Adeland, Cates, Judyville, Loudonville, and Mitiwanga soils have bedrock within 40 inches of the surface.

Second, erosion results in the sedimentation and pollution of ditches, lakes, and streams. Controlling erosion minimizes sedimentation and pollution and improves water quality for fish and wildlife, for municipal use, and for recreational uses.

Planting cover crops may help to control erosion on the more sloping soils. Cover crops are especially important after soybeans or corn for silage is grown. Tillage methods that leave crop residue on 50 or more percent of the surface can protect most of the sloping soils from excessive erosion during winter and early spring.

A conservation tillage system helps to hold soil losses to acceptable levels on most of the sloping soils. If row crops are grown year after year on these soils, soil losses generally are high unless a conservation tillage system is applied.

No-till and strip-plant cropping systems are effective in minimizing soil loss on soils used for corn or soybeans (fig. 7). These conservation tillage systems can be adapted to many of the soils in the county that are susceptible to erosion. When no-till and strip-till systems are used in areas that have a thick vegetative cover or protective amounts of crop residue on the surface, soil moisture evaporates at a slower rate and the weed population is greatly reduced. Angatoka, Coloma, Elston, Kendallville, Loudonville, Miami, Ockley, Octagon, Princeton, Rainsville, and Russell soils are examples of sloping soils that are suitable for no-till and strip-till systems.

Figure 7.—No-till corn in an area of Rush silt loam, 0 to 2 percent slopes.

Contour farming is effective in controlling erosion in a few areas of the county. In areas where slopes are short and irregular, managing this practice may be difficult. Other types of conservation measures may be more suitable.

Riparian buffer strips are useful in limiting the amount of sediment and pollutants that enter streams.

Water- and sediment-control basins are effective in reducing the rate of runoff in drainageways. They are most effective where subsurface tile can be installed as outlets and on soils that have slopes of about 8 percent or less. Rush, Russell, and Xenia soils are examples.

Grassed waterways are needed to protect the channels that drain a watershed (fig. 8). Subsurface

Figure 8.—Grassed waterway in an area of Miami-Rainsville complex, 2 to 6 percent slopes, eroded.

drains are needed in areas where wetness or seepage is a problem in the waterways.

Grade-stabilization structures are needed in many areas of the county where water in one drainageway falls into a more sloping drainageway. These structures stabilize the drainageways and minimize gully erosion.

Information about the type and design of erosion-control practices that are best suited to each kind of soil in the county is available at the local office of the Natural Resources Conservation Service.

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 granular and porous. Many of the soils used for row crops in the county have a surface layer of silt loam that has a moderate to low content of organic matter. Where there is little or no crop residue, a hard surface crust forms after periods of intensive rainfall. The hard crust reduces the infiltration rate, increases the runoff rate, and inhibits plant emergence. Regular additions of crop residue, cover crops, manure, and other organic material improve soil structure and help to minimize crusting.

Beaucoup, Chalmers, Drummer, Mahalaland, Mahalasville, Pella, Ragsdale, Rensselaer, Sloan, Treaty, and Westland soils have a moderately fine textured surface layer. Tilth is a problem in areas of these soils. If tilled when too wet, the surface layer becomes very cloddy when dry and cannot be easily worked. As a result, preparing a good seedbed is very difficult. Spring tillage, if needed on these soils, generally results in better tilth.

Many of the soils in the county have a silty or loamy surface layer that is easily compacted. Tilling or grazing when the soils are wet causes surface compaction, which restricts penetration by tillage equipment and plant roots and limits plant growth.

Soil fertility is affected mainly by reaction and by the content of plant nutrients and organic matter.

On soils that have a pH level below about 6.4, applications of ground limestone are needed to raise the pH level sufficiently for the best utilization of plant nutrients by cultivated crops, such as corn and soybeans, and thus for optimum yields. On soils that have a pH below about 6.4, ground limestone is needed for hay and pasture plants, such as alfalfa and red clover. The supply of available phosphorus and potassium is generally below the level needed for good plant growth in most of the soils in areas where fertilizer has been applied. On all soils, additions of lime and fertilizer should be based on the results of soil tests, the needs of the crop, and the desired level of yields. The Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime to be applied.

The pasture plants commonly grown in the county are mixtures of tall fescue, orchardgrass, bromegrass, timothy, alfalfa, and red clover. Other pasture plants are bluegrass, ladino clover, redtop, alsike clover, lespedeza, and sweetclover. Most of the soils in the county are well suited to grasses, such as tall fescue, timothy, and orchardgrass, and to legumes, such as red clover, ladino clover, alfalfa, and lespedeza. Legumes grow poorly, however, in soils that are poorly drained or very poorly drained, such as Drummer, Ragsdale, and Rockmill soils.

Growing legumes, cool-season grasses, and-warm season grasses that are suited to the soils and the climate of the county helps to maintain a productive stand of pasture plants (fig. 9).

The field crops suited to the soils and climate in the county include those that are currently grown and some that are not commonly grown. Corn, soybeans, and wheat are the principal cultivated crops. Other cultivated crops are oats and rye. The latest information about growing cultivated crops, hay and pasture plants, and specialty crops can be obtained from local offices of the Cooperative Extension Service or the Natural Resources Conservation Service.

Limitations and Hazards on Cropland and Pasture

The management concerns affecting the use of the soils in the county for crops and pasture are shown in table 5. The main concerns in managing cropland and

Figure 9.—Pasture in an area of Chalmers silty clay loam, 0 to 1 percent slopes.

pasture are controlling water erosion, wind erosion, and soil wetness and ponding; minimizing surface crusting; improving poor tilth; operating equipment safely on steep slopes; and limiting the effects of excessive and restricted permeability and of a limited available water capacity. Also, most of the soils suitable for legumes have a high potential for frost action. The local office of the Natural Resources Conservation Service or the Cooperative Extension Service can provide information about the legumes that can be damaged by frost heave. This hazard is not listed in table 5 because it applies to the majority of the soils.

Both *water erosion* and *wind erosion* reduce the productivity of cropland and pasture. They also result in onsite and offsite sedimentation, cause water pollution by sedimentation, and increase the runoff of livestock manure and other added nutrients. Generally, a combination of several practices is needed to control both water erosion and wind erosion. Conservation tillage, stripcropping, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to minimize soil loss. In areas of pasture, measures that are effective in controlling water erosion include establishing or renovating stands of legumes and grasses. Controlling erosion during seedbed preparation is a major concern. If the soil is tilled for the reseeding of pasture or hay crops, planting winter cover crops, establishing grassed waterways, farming on the contour, and applying a system of conservation tillage that leaves a protective cover crop residue on the surface can help to minimize erosion.

In some areas of the county, *wetness* is a limitation and *ponding* is a hazard. Drainage systems consist of subsurface tile drains, surface inlet tile, open drainage ditches, or a combination of these. Measures that maintain the drainage system are needed.

In pastured areas overgrazing or grazing when the soil is wet reduces the extent of the plant cover, results in surface compaction and poor tilth, and increases the susceptibility to erosion. Proper stocking rates, rotation grazing, and timely deferment of grazing, especially during wet periods, help to keep the pasture in good condition. Properly locating livestock watering facilities helps to prevent surface compaction and the formation of ruts by making it unnecessary for cattle to travel long distances up and down steep slopes.

Practices that reduce *surface crusting* and improve *poor tilth* include incorporating green manure crops, manure, or crop residue into the soil and applying a system of conservation tillage. Surface cloddiness can be minimized by avoiding tillage when the soil is too wet.

Available water capacity refers to the capacity of soils to hold water available for use by most plants. Measures that conserve moisture are needed where the soils have a low or moderate available water capacity. These measures primarily involve reducing the evaporation and runoff rates and increasing the rate of water intake. Applying conservation tillage and conservation cropping systems, farming on the contour, stripcropping, establishing field windbreaks, and leaving crop residue on the surface conserve moisture. The quality and quantity of pasture plants may be reduced on soils that have low or moderate available water capacity. The amount of soil moisture may be inadequate for the maintenance of a healthy community of desired pasture species and thus the desired number of livestock. A poor-quality pasture increases the hazard of erosion and the runoff of pollutants. Planting drought-resistant species of grasses and legumes helps to establish a protective plant cover. Irrigation can be used to overcome a low available water capacity.

Both a *low pH* and a *high pH* inhibit the uptake of certain nutrients by plants or accelerates the absorption of certain other elements to the level of toxic concentrations. Either of these conditions affects the health and vigor of the plants. For a low pH, applications of lime should be based on the results of soil tests. The goal is to achieve the optimum pH level for the uptake of the major nutrients by the specific grass, legume, or combination of grasses and legumes. The surface layer of most of the soils in the county naturally has a low pH, except for some soils on flood plains. For of the most soils, the pH should be raised to a level that results in the best crop response. Soils with a high pH may require treatment to lower the pH so that certain elements are adequately available for crop growth.

Equipment limitations occur in areas where slopes are 15 percent or more. The operation of farm equipment may be restricted and hazardous in these areas. Cates, Judyville, Kendallville, Minnehaha, Rodman, and Strawn soils and strongly sloping areas of Ockley, Russell, and Silverwood soils have equipment limitations because of the slope. Soils with more than 15 percent rock fragments in the surface layer and soils with cobbles or stones on the surface also have equipment limitations. The rock fragments can limit the type of equipment that can be used or can damage the equipment during reseeding and planting operations. Loudonville silt loam, 4 to 12 percent slopes, stony, has equipment limitations because of stones on the surface. Fairpoint and Pinevillage soils have equipment limitations because of a gravelly surface layer.

Soils with bedrock, strongly contrasting textural stratification, or dense glacial till within a depth of 40 inches have a *limited rooting depth*.

Some of the limitations and hazards shown in table 5 cannot be easily overcome. These are *flooding, depth to bedrock, restricted permeability,* and *subsidence*. Winter-grown small grain crops are likely to be damaged after a flood. Water-tolerant species should be grown in areas that are frequently flooded during the growing season.

Following is an explanation of the criteria used to determine the limitations or hazards.

Water erosion.—The value of K factor of the surface layer multiplied by the slope is more than 0.8, and the slope 3 percent or more.

Wind erosion.—The wind erodibility group is 1 or 2 for soils on flood plains or 3 for soils in other areas.

Wetness.—The soil has a water table within a depth of 1.5 feet during the growing season.

Ponding.—The soil is subject to ponding during the growing season.

Crusting.—The content of organic matter in the surface layer is 2 percent or less, the percent passing the number 200 sieve is more than 50 percent, and the content of clay is less than 32 percent.

Poor tilth.—The soil typically has 32 percent or more clay in the surface layer.

Low available water capacity.—The weighted average of the available water capacity is less than 0.10 inch of water per inch of soil within a depth of 60 inches.

Moderate available water capacity.—The weighted average of the available water capacity is between 0.11 and 0.15 inch of water per inch of soil within a depth of 60 inches.

Low pH.—The typical pH value is equal to or less than 6.0 in the surface layer.

High pH.—The typical pH value is equal to or higher than 7.4 in the surface layer.

Equipment limitation.—The soil has a slope of 15 percent or more, has cobbles or stones on the surface, or has more than 15 percent rock fragments in the surface layer.

Limited rooting depth.—Bedrock, strongly contrasting textural stratification, or dense glacial till, which has an average bulk density of 1.75 grams per cubic centimeter or more, is within a depth of 40 inches.

Flooding.—The soil is occasionally or frequently flooded during the growing season.

Restricted permeability.—Permeability is less than 0.2 inch per hour in one or more layers within a depth of 40 inches.

Estimated Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table.

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

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

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

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

Pasture and Hayland Interpretations

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 (fig. 10). Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation are important management practices.

Pasture yield estimates are commonly given in animal unit months (AUM), or the amount of forage or feed required to feed one animal unit (one cow, one

Figure 10.—Pasture in an area of Waupecan silt loam, 0 to 2 percent slopes.

horse, one mule, five sheep, or five goats) for 30 days. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in table 6.

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 take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, and for engineering purposes.

In the capability system, soils generally are grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

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

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

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

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use mainly to pasture, rangeland, woodland, wildlife habitat, or recreation.

The capability classification of the map units in the county is given in table 6.

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 has been the conversion of prime farmland to urban and industrial 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 215,960 acres in the county, or nearly 85 percent of the total acreage, meets the criteria for prime farmland. Areas of this land are throughout the county.

The map units in the survey area that meet the criteria for prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the table, 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 of each map unit is shown on the detailed soil maps. The soil qualities that affect use and management are described in individual sections of this publication.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

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. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

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.

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of potential heights are necessary when a windbreak is planned and designed.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in this table 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 local offices of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

Forestland

Virgin forest once covered most of the land in Fountain County, but the trees have been removed from most of the land suitable for cultivation. About 26,000 acres in the county, or nearly 10 percent of the total land acreage, remains forestland (fig. 11). The soils in much of this remaining forestland are too steep or too wet for farming. Under proper management, the soils in these areas produce trees of high quality.

The most common trees in the uplands are mixed hardwoods, mainly yellow-poplar, sugar maple, white oak, sycamore, red maple, silver maple, and pin oak.

Site characteristics that affect tree growth include aspect, or the direction the slope is facing, and position on the slope. These site characteristics influence the amount of available sunlight, air drainage, soil temperature, soil moisture, and relative humidity. North- and east-facing slopes and low positions on the slopes are generally the best upland sites for tree growth because they are cooler and have better moisture conditions than south- and west-facing slopes.

Soil properties are fundamentally important for woodland production. Twenty-five percent or more of the mass of a tree is in the soil, which serves as a reservoir for moisture, provides an anchor for roots, and supplies essential plant nutrients. Soil properties that affect the growth of trees include reaction, fertility, wetness, texture, structure, slope, and depth. Trees grow best on soils having properties that are not extreme and having an effective rooting depth of more than 40 inches.

Soil wetness is the result of a high water table, flooding, or ponding. It causes seedling mortality, limits the use of equipment, and increases the windthrow hazard by restricting the rooting depth of some trees. Ruts form easily if wheeled skidders are used when the soils are wet. Deep ruts restrict lateral drainage, damage tree roots, and alter soil structure. Flooding is a hazard on some soils. On soils that are subject to flooding or ponding, equipment should be used only during dry periods or when the ground is frozen.

The slope can limit the use of forestry equipment. A slope of 15 percent or more limits the use of equipment in logging and yarding areas and on skid trails and unsurfaced logging roads. Erosion is a hazard in these disturbed areas. Special erosion-control measures, such as water bars and dips, are needed. Also, the design of logging roads and skid trails should minimize the steepness and length of slopes and prevent the concentration of water. Steep slopes are a safety hazard and limit the use of equipment. Equipment should be operated on the contour where possible for erosion control, but the steepness of the slope may present a safety issue. On the steeper slopes, logs should be moved uphill to skid trails and yarding areas.

Forestland productivity can be influenced by management activities. These practices include thinning young stands, harvesting mature trees, preventing fire, and eliminating the use of woodland for grazing. Forest fires are no longer a major problem in the county, but some of the forestland is used for grazing. Grazing destroys the leaf layer, compacts the soil, and destroys or damages seedlings. Forestland sites that are not used for grazing and that are protected from fire have the highest potential for production.

Much of the existing commercial forestland in Fountain County could be improved by thinning out mature trees and undesirable species. Protection from grazing and fire and control of disease and insects also can improve the stands. The Natural Resources

Figure 11.—A wooded area of Fincastle silt loam, 0 to 2 percent slopes, near Hideaway Lake.

Conservation Service, the State Division of Forestry, consulting foresters, and the Cooperative Extension Service can ascertain specific woodland management needs. Assistance in establishing, improving, or managing forestland is available from foresters or natural resources specialists.

Information about the productivity and management of the forested map units in this survey area is given in table 9. This table can be used by forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Management Concerns

Table 9 shows the *suitability for the use of harvesting equipment* and the *hazard of erosion (off-road, off-trail).* The soils are *well suited* to the use of tree-harvesting equipment if equipment use is not limited to a particular kind of equipment or time of year, *moderately well suited* if there is a short seasonal limitation or a need for some modification in the management of equipment, and *poorly suited* if there is a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

The hazard of erosion in off-road and off-trail areas is *slight* if the expected soil loss is small, *moderate* if some measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive soil loss.

Potential Productivity

In table 9, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Volume, 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.

Suggested trees to plant are those that are suitable for commercial wood production and are suited to the soils.

Recreation

The soils of the survey area are rated in table 10 (parts 1 and 2) 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 table 10 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, and sanitary facilities.

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.

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

James D. McCall, wildlife biologist, Natural Resources Conservation Service, helped prepare this section.

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 11, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are wheat, rye, oats, sorghum, and sunflowers.

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, timothy, orchardgrass, clover, bluegrass, alfalfa, trefoil, reed canarygrass, and crownvetch.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are goldenrod, beggarweed, ragweed, pokeweeed, sheep sorrel, dock, crabgrass, and dandelion.

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, beech, wild cherry, sweetgum, willow, black walnut, apple, hawthorn, dogwood, hickory, hazelnut, blackberry, elderberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are hawthorn, honeysuckle, American plum, redosier dogwood, chokecherry, serviceberry, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, hemlock, fir, yew, cedar, larch, 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, pondweed, wild millet, rushes, sedges, wildrice, arrowhead, waterplantain, pickerelweed, and cattail.

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, dove, meadowlark, field sparrow, cottontail, woodchuck, 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, thrushes, woodpeckers, owls, tree squirrels, porcupine, raccoon, and white-tailed 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, bitterns, rails, kingfishers, muskrat, otter, mink, and beaver.

Areas where major land uses or cover types adjoin are called “edge habitat.” A good example is the border between dense woodland and a field of no-till corn. Although not rated in the table, edge habitat is of primary importance to animals from the smallest songbirds to white-tailed deer (fig. 12). Most of the animals that inhabit areas of openland or woodland also frequent areas of edge habitat, and desirable edge areas are consistently used by 10 times as many wildlife as are the centers of large areas of woodland or cropland.

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; and 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 of the soil profile (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” (USDA, 1999) and “Keys to Soil Taxonomy” (USDA, 1998) and in the “Soil Survey Manual” (USDA, 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 that can be used to make onsite determinations of hydric soils in Fountain County are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This

Figure 12.—White-tailed deer and other wildlife are attracted to areas of mixed woodland and openland habitat in Fountain County.

depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described as deep as necessary for an understanding of the redoximorphic processes. Then, using the completed soil description, 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 one (or more) 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, 1996).

AbhAI—Adrian muck, 0 to 1 percent slopes, frequently flooded, long duration
ChqA—Chalmers silty clay loam, 0 to 1 percent slopes
DpbA—Drummer silty clay loam, 0 to 1 percent slopes
MamA—Mahalasville silty clay loam, 0 to 1 percent slopes
MaoA—Mahalaland silty clay loam, 0 to 1 percent slopes
MapA—Mahalasville silty clay loam, bedrock substratum, 0 to 1 percent slopes
PgaA—Pella silty clay loam, 0 to 1 percent slopes
RbfA—Ragsdale silty clay loam, 0 to 1 percent slopes
RetA—Rensselaer silty clay loam, 0 to 1 percent slopes
RosAK—Rockmill silt loam, 0 to 1 percent slopes, occasionally flooded, brief duration
SnlAP—Southwest silt loam, 0 to 1 percent slopes, ponded, brief duration
SobAI—Sloan and Beaucoup soils, 0 to 1 percent slopes, frequently flooded, long duration
ThrA—Treaty silty clay loam, 0 to 1 percent slopes
WqvA—Westland silty clay loam, 0 to 1 percent slopes

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.

Engineering

This section provides information for planning land uses related to urban development. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, and construction materials. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 12 (parts 1 and 2) 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 13 (parts 1 and 2) show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil (fig. 13). 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

Figure 13.—Landfill in an area of Udorthents, loamy, 3 to 30 percent slopes.

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.

Waste Management

Soil properties are important when organic waste is applied as fertilizer and wastewater is applied in irrigated areas. They also are important when the soil is used as a medium for the treatment and disposal of the organic waste and wastewater. Unfavorable soil properties can result in environmental damage.

The use of organic waste and wastewater as production resources results in the conservation of energy and resources and minimizes the problems associated with waste disposal. If disposal is the goal, applying a maximum amount of the organic waste or wastewater to a minimal area holds costs to a minimum and environmental damage is the main hazard. If reuse is the goal, a minimum amount should be applied to a maximum area and environmental damage is unlikely.

Interpretations developed for waste management may include ratings for application of manure and food-processing waste, application of municipal sewage sludge, disposal of wastewater by irrigation, and treatment of wastewater by slow rate, overland flow, and rapid infiltration processes. Specific information regarding waste management is available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Construction Materials

Table 14 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.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In table 14, 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 one or more of the following characteristics: a plasticity index of more than 10, a high shrink-swell potential, many stones, slopes of more than 25 percent, or 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 14, only the probability of finding material in suitable quantity in or below the soil 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 has 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. 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 generally is preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

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.

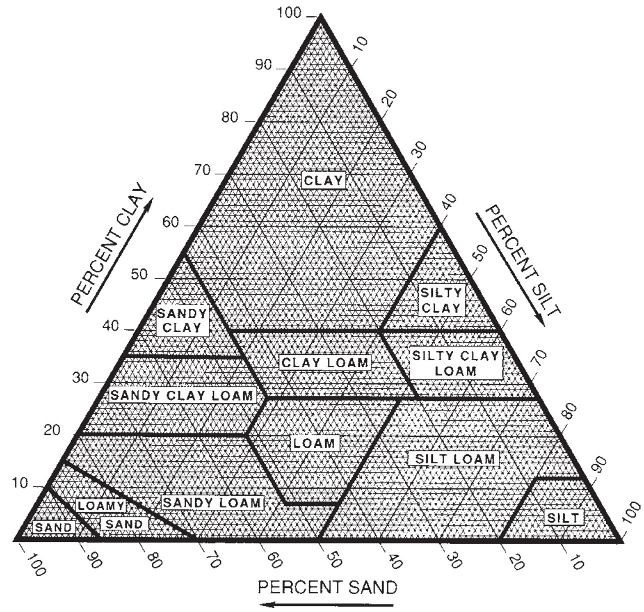


Figure 14.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 15 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

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. 14). “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 16 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major 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 greatly affect the fertility and physical condition of the soil. They determine 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.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Erosion factors are shown in table 16 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of 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 17 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils. The table also shows the content of organic matter in the surface layer of the 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 table 17, 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 18 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 18 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 18 indicates the *maximum ponding depth* and the *ponding duration*. 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.

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides (fig. 15). 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.

Figure 15.—Flooding along Coal Creek, in an area of Genesee soils 0 to 2 percent slopes, occasionally flooded, brief duration.

Soil Features

Table 19 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

Bedrock is the solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface. It significantly impedes the movement of water and air through the soil and restricts root penetration. The table indicates the hardness of the bedrock, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the bedrock.

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. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 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 20 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The Rush series is an example.

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 soil 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” (USDA, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA, 1999) and in “Keys to Soil Taxonomy” (USDA, 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.

Adeland Series

Taxonomic classification: Fine, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for the Series

Adeland silt loam, on a slope of 1 percent, in a cultivated field, 1,300 feet west and 400 feet south of the center of sec. 9, T. 22 N., R. 6 W., Warren County, Indiana; about 3½ miles west and 1 mile north of Westpoint; USGS Westpoint topographic quadrangle; lat. 40 degrees 21 minutes 55.4 seconds north and long. 87 degrees 6 minutes 23.26 seconds west; 490,961 easting and 4,468,118 northing UTM zone 16, NAD 27:

Ap—0 to 7 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; strongly acid; abrupt smooth boundary.
E—7 to 10 inches; grayish brown (10YR 5/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium platy structure parting to moderate medium granular; friable; common fine and very fine roots; common fine distinct dark yellowish brown (10YR 4/4) accumulations of iron in the matrix; strongly acid; clear wavy boundary.
Bt1—10 to 13 inches; yellowish brown (10YR 5/6) silty clay; moderate medium subangular blocky structure; very firm; common very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent rock fragments; very strongly acid; clear wavy boundary.
2Bt2—13 to 21 inches; yellowish brown (10YR 5/6) clay; moderate medium subangular blocky structure; very firm; common very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; 8 percent rock fragments; very strongly acid; clear wavy boundary.
2Bt3—21 to 29 inches; light olive brown (2.5Y 5/4) clay loam; moderate medium subangular blocky structure; very firm; few continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent rock fragments; slightly acid; clear wavy boundary.
3C—29 to 34 inches; light brownish gray (2.5Y 6/2) silty clay; massive; firm; common fine prominent olive yellow (2.5Y 6/8) accumulations of iron in the matrix; many fine distinct gray (N 6/0) iron depletions in the matrix; 12 percent shale fragments; very strongly acid; gradual wavy boundary.
3R—34 inches; dark gray (10YR 4/1), unweathered, thinly bedded siltstone and shale; strongly acid.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 20 to 40 inches

Depth to bedrock: 20 to 40 inches

A or Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Reaction—strongly acid to neutral

E horizon (where present):
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Texture—silt loam or loam
Reaction—strongly acid to neutral

Bt and 2Bt horizons:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay, clay, silty clay loam, or clay loam
Reaction—very strongly acid to slightly acid
Content of rock fragments—1 to 12 percent

3C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam, silty clay, clay loam, loam, or the channery analogs of those textures
Reaction—very strongly acid to moderately acid
Content of rock fragments—0 to 20 percent

3R horizon:
Kind of bedrock—acid shale and siltstone

Adrian Series

Taxonomic classification: Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists

Typical Pedon for MLRA 111

Adrian muck, in a cultivated field, 100 feet south and 1,850 feet west of the center of sec. 32, T. 33 N., R. 3 W., Starke County, Indiana; about 2 miles east of English Lake; USGS English Lake topographic quadrangle; 517,451 easting and 4,568,077 northing UTM zone 16, NAD 27:

Oa1—0 to 10 inches; black (N 2.5/0) (broken face and rubbed) muck (sapric material); 25 percent fiber, 4 percent rubbed; weak medium granular structure; very friable; many fine and very fine roots; mostly herbaceous fibers; 5 percent mineral content; moderately acid; abrupt smooth boundary.
Oa2—10 to 24 inches; black (10YR 2/1) (broken face

and rubbed) muck (sapric material); 40 percent fiber, 8 percent rubbed; strong medium platy structure; friable; few fine roots; mostly herbaceous fibers; few woody fragments 1 to 3 inches in diameter; 3 percent mineral content; moderately acid; clear smooth boundary.

Oa3—24 to 36 inches; very dark brown (10YR 2/2) (broken face) muck (sapric material), black (10YR 2/1) rubbed; 50 percent fiber, 8 percent rubbed; massive; friable; mostly herbaceous fibers; 8 percent mineral content; a 1-inch-thick, very dark gray (N 3/0) sapric muck lens with 20 percent mineral content at a depth of 35 inches; moderately acid; abrupt wavy boundary.

Cg1—36 to 46 inches; gray (10YR 5/1) sand; single grain; loose; a 1/8-inch-thick lens of silt loam; neutral; clear wavy boundary.

Cg2—46 to 80 inches; grayish brown (10YR 5/2) sand; single grain; loose; neutral.

Range in Characteristics for MLRA 111

Thickness of the organic material: 16 to 51 inches
Kind of organic material: Primarily herbaceous; woody fragments 1 to 6 inches in diameter in some pedons

Oa1 tier:
Hue—5YR to 10YR or neutral
Value—2 or 2.5
Chroma—0 to 3
Reaction—strongly acid to neutral

Oa2 and Oa3 tiers:
Hue—10YR to 5YR or neutral
Value—2, 2.5, or 3
Chroma—0 to 3
Reaction—strongly acid to neutral

Cg horizon:
Hue—5YR to 5Y or neutral
Value—2 to 6
Chroma—0 to 4
Texture—sand, coarse sand, fine sand, loamy sand, gravelly sand, or gravelly loamy sand
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 25 percent

Allison Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon for MLRA 111

Allison silt loam, in a cultivated field, 160 feet east and 2,450 feet north of the southwest corner of sec. 30, T. 23 N., R. 5 W., Tippecanoe County, Indiana; about 4 miles east of Green Hill; USGS Otterbein topographic quadrangle; 496,960 easting and 4,472,944 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; common fine roots; slightly effervescent; moderately alkaline; abrupt smooth boundary.

A1—10 to 18 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure; firm; common very fine roots; common very fine pores; few continuous distinct black (10YR 2/1) organic coatings on faces of peds; moderately alkaline; gradual smooth boundary.

A2—18 to 33 inches; very dark gray (10YR 3/1) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate very fine subangular blocky structure; firm; few very fine roots; common very fine pores; few continuous distinct black (10YR 2/1) organic coatings on faces of peds; moderately alkaline; gradual smooth boundary.

A3—33 to 51 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate very fine subangular blocky structure; firm; common very fine pores; few continuous distinct black (10YR 2/1) organic coatings on faces of peds; moderately alkaline; gradual smooth boundary.

BA—51 to 58 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 4/3) dry; moderate fine subangular blocky structure; firm; common very fine pores; few discontinuous distinct black (10YR 2/1) organic coatings on faces of peds; moderately alkaline; gradual smooth boundary.

Bw—58 to 80 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; firm; few very fine pores; few discontinuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 30 to more than 60 inches
Thickness of the mollic epipedon: 24 to 60 inches
Reaction: Slightly acid to moderately alkaline throughout the profile

Ap, A, and BA horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or silty clay loam

Bw horizon:
Hue—10YR
Value—2 to 4
Chroma—2 to 4
Texture—silt loam or silty clay loam

Angatoka Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Ultic Hapludalfs

Typical Pedon for the Series

Angatoka silt loam, on a slope of 8 percent, in an area of forestland, 2,200 feet west and 750 feet north of the southeast corner sec. 14, T. 18 N., R. 9 W., Fountain County, Indiana; about 4 miles north of Silverwood; USGS Newport topographic quadrangle; lat. 39 degrees 59 minutes 52.8 seconds north and long. 87 degrees 24 minutes 6.7 seconds west; 465,696 easting and 4,427,412 northing UTM zone 16, NAD 27:

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.

A—1 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine and medium roots throughout; strongly acid; abrupt smooth boundary.

E—4 to 10 inches; pale brown (10YR 6/3) silt, very pale brown (10YR 7/3) dry; weak very fine and fine subangular blocky structure; friable; common fine and medium roots throughout; common continuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; very strongly acid; clear smooth boundary.

Bt1—10 to 17 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots throughout; common continuous distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; common continuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; very strongly acid; clear smooth boundary.

Bt2—17 to 30 inches; yellowish brown (10YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; friable; common medium roots throughout; common continuous distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few continuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; very strongly acid; clear smooth boundary.

Bt3—30 to 40 inches; yellowish brown (10YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; friable; common medium roots throughout; common continuous distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few continuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; very strongly acid; clear smooth boundary.

Bt4—40 to 47 inches; yellowish brown (10YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; friable; common medium roots throughout; few continuous distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few continuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; very strongly acid; clear smooth boundary.

Bt5—47 to 62 inches; dark yellowish brown (10YR 4/6) silt loam; weak medium and coarse subangular blocky structure; friable; common medium roots throughout; few continuous distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; few continuous distinct pale brown (10YR 6/3) silt coatings on faces of peds; common fine and medium distinct yellowish brown (10YR 5/8) accumulations of iron in the matrix; very strongly acid; clear smooth boundary.

2BCt1—62 to 66 inches; olive brown (2.5Y 4/4) loam; weak medium subangular blocky structure; firm; common medium roots throughout; few patchy distinct dark yellowish brown (10YR 4/6) clay films in root channels and/or pores; 8 percent rock fragments; slightly acid; clear smooth boundary.

2BCt2—66 to 70 inches; olive brown (2.5Y 4/4) loam; weak fine subangular blocky structure; firm; common medium roots throughout; few patchy distinct dark yellowish brown (10YR 4/6) clay films in root channels and/or pores; 8 percent rock fragments; neutral; abrupt wavy boundary.

2C—70 to 80 inches; light olive brown (2.5Y 5/4) loam; massive; very firm; 8 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 44 to 75 inches
Thickness of the loess: 60 to 80 inches

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Reaction—very strongly acid to neutral

E horizon:
Hue—10YR
Value—5 or 6
Chroma—2 or 3

Texture—silt or silt loam
Reaction—very strongly acid

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid or strongly acid

2BCt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—4 to 6
Texture—loam, clay loam, or silty clay loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—0 to 13 percent

2C horizon of loam:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—4 to 6
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 14 percent

2C horizon in the outwash substratum phase:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—4 to 6
Texture—stratified gravelly coarse sand to sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 34 percent

Ayrshire Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Pedon for MLRA 111

Ayrshire loam, on a convex slope of 1 percent, in a cultivated field, 1,450 feet south and 2,400 feet east of the northwest corner of sec. 25, T. 20 N., R. 9 W., Fountain County, Indiana; about one-half mile north of Covington; USGS Stone Bluff topographic quadrangle; 467,027 easting and 4,444,755 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; brown (10YR 4/3) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common fine and medium roots; slightly acid; abrupt smooth boundary.
BE—8 to 12 inches; grayish brown (10YR 5/2) loam; weak fine granular structure; friable; common fine and medium roots; common fine prominent dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; slightly acid; clear wavy boundary.
Bt1—12 to 24 inches; light olive brown (2.5Y 5/4) clay loam; weak thin and medium platy structure; firm; few fine roots; many continuous distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; common black (10YR 2/1) weakly cemented iron and manganese concretions; many fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; moderately acid; gradual wavy boundary.
Bt2—24 to 31 inches; light olive brown (2.5Y 5/4) sandy clay loam; weak coarse subangular blocky structure; firm; very few fine roots; many discontinuous faint grayish brown (10YR 5/2) clay films on faces of peds; many fine distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine black (10YR 2/1) weakly cemented iron and manganese concretions; few distinct light gray (10YR 7/2) clay depletions on vertical faces of peds; moderately acid; gradual wavy boundary.
Btg—31 to 44 inches; grayish brown (2.5Y 5/2) clay loam; weak coarse subangular blocky structure; firm; many fine prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; few fine and medium rounded black (10YR 2/1) weakly cemented iron and manganese concretions; slightly acid; clear wavy boundary.
C—44 to 80 inches; yellowish brown (10YR 5/6) sandy loam with strata of silt and very fine sand; massive and single grain; friable and loose; neutral.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches
Content of rock fragments: 0 to 1 percent throughout the profile

Ap or A horizon:
Hue—10YR
Value—3 to 5 (When the value is 3, the A horizon is less than 5 inches thick.)
Chroma—1 to 3
Texture—loam, sandy loam, or fine sandy loam
Reaction—moderately acid to neutral

BE or E horizon:
Hue—10YR
Value—5 or 6
Chroma—1 or 2
Texture—fine sandy loam, sandy loam, or loam
Reaction—moderately acid to neutral

Bt and Btg horizons:
Hue—10YR or 2.5Y
Value—4 to 7

Chroma—1 to 6
Texture—sandy clay loam, loam, or clay loam
Reaction—strongly acid to neutral

C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 7
Chroma—1 to 6
Texture—fine sand, loamy fine sand, fine sandy loam, sandy loam, or loam with strata of silt to very fine sand
Reaction—neutral to moderately alkaline

Battleground Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for the Series

Battleground silt loam, on a nearly level slope, in a cultivated field, 1,475 feet south and 560 feet west of the northeast corner of sec. 34, T. 23 N., R. 5 W., Tippecanoe County, Indiana; 2 miles south and 3 miles west of Lafayette; USGS Lafayette West topographic quadrangle; 503,085 easting and 4,471,744 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate medium granular structure; friable; common fine roots; slightly effervescent; moderately alkaline; abrupt smooth boundary.
A—10 to 19 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine subangular blocky structure; firm; common very fine roots; common very fine vesicular pores; common continuous distinct black (10YR 2/1) organic coatings on faces of peds; slightly effervescent; moderately alkaline; gradual smooth boundary.
Bw1—19 to 34 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate fine subangular blocky structure; friable; few very fine roots; common very fine vesicular pores; common continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly effervescent; moderately alkaline; gradual smooth boundary.
Bw2—34 to 52 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate fine subangular blocky structure; friable; common very fine vesicular pores; common continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly effervescent; moderately alkaline; gradual smooth boundary.
Bw3—52 to 80 inches; brown (10YR 4/3) silt loam; moderate fine subangular blocky structure; friable; common very fine vesicular pores; few discontinuous distinct dark brown (10YR 3/3) organic coatings on faces of peds; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 60 to more than 80 inches
Thickness of the mollic epipedon: 10 to 24 inches
Carbonates: Evident throughout the profile
Reaction: Slightly alkaline or moderately alkaline throughout the profile

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or silty clay loam

Bw horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture—silty clay loam or silt loam

Beaucoup Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon for MLRA 111

Beaucoup silty clay loam, in a wooded area, 820 feet west and 1,120 feet south of the northeast corner of sec. 31, T. 22 N., R. 7 W., Warren County, Indiana; about 1 mile north of Attica; USGS Attica topographic quadrangle; 479,059 easting and 4,462,265 northing UTM zone 16, NAD 27:

A1—0 to 10 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak fine subangular blocky structure; friable; many fine and medium roots; neutral; clear wavy boundary.
A2—10 to 15 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; weak fine subangular blocky structure; friable; many fine and medium roots; neutral; clear wavy boundary.
Bg1—15 to 22 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to weak fine subangular blocky; firm; many fine and medium roots; common continuous distinct very

dark gray (10YR 3/1) organic coatings on faces of peds; many very dark gray (10YR 3/1) krotovinas; many fine distinct dark yellowish brown (10YR 4/4) accumulations of iron in the matrix; slightly acid; clear wavy boundary.

Bg2—22 to 30 inches; gray (10YR 5/1) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; firm; common fine and very fine roots; common continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; many very dark gray (10YR 3/1) krotovinas; common fine prominent strong brown (7.5YR 4/6) accumulations of iron in the matrix; common medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

Bg3—30 to 40 inches; gray (N 5/0) silty clay loam; weak coarse prismatic structure parting to moderate medium angular blocky; firm; common fine and very fine roots; few discontinuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common very dark gray (10YR 3/1) krotovinas; common fine prominent strong brown (7.5YR 4/6) accumulations of iron in the matrix; common medium distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; slightly acid; gradual wavy boundary.

BCg—40 to 49 inches; gray (5Y 5/1) silty clay loam that has thin strata of silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; common fine and very fine roots; common very dark gray (10YR 3/1) krotovinas; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; many medium faint grayish brown (2.5Y 5/2) iron depletions in the matrix; neutral; gradual wavy boundary.

Cg—49 to 60 inches; olive gray (5Y 5/2) silt loam that has thin strata of loam; massive; firm; common fine and very fine roots; few very dark gray (10YR 3/1) krotovinas; common medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; common medium faint light brownish gray (2.5Y 6/2) iron depletions in the matrix; neutral.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 35 to 65 inches
Thickness of the mollic epipedon: 10 to 24 inches
Depth to carbonates: More than 40 inches

Ap or A horizon:
Hue—10YR or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—silty clay loam or silt loam
Reaction—moderately acid to slightly alkaline

Bg horizon:
Hue—10YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 2
Reaction—moderately acid to slightly alkaline

BCg and Cg horizons:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—stratified silty clay loam, silt loam, loam, sandy loam, fine sandy loam, or very fine sandy loam
Reaction—slightly acid to moderately alkaline

Beckville Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts

Typical Pedon for the Series

Beckville loam, on a slope of less than 1 percent, in a cultivated field, 600 feet east and 2,350 feet south of the northwest corner of sec. 32, T. 19 N., R. 3 W., Montgomery County, Indiana; about $2^1/_2$ miles north of Mace; USGS Darlington topographic quadrangle; 518,064 easting and 4,432,881 northing UTM zone 16, NAD 27:

Ap—0 to 11 inches; very dark grayish brown (10YR 3/2) loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common fine roots; slightly alkaline; abrupt smooth boundary.

Bw1—11 to 21 inches; brown (10YR 4/3) loam; weak medium granular structure; friable; common fine roots; few distinct dark brown (10YR 3/3) organic coatings on faces of peds; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

Bw2—21 to 28 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; friable; few fine roots; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

C1—28 to 44 inches; dark grayish brown (10YR 4/2) loam; massive; friable; many medium distinct yellowish brown (10YR 5/4) accumulations of iron in the matrix; slightly effervescent; slightly alkaline; clear smooth boundary.

C2—44 to 60 inches; grayish brown (10YR 5/2) sandy loam; massive; very friable; common medium distinct yellowish brown (10YR 5/4) accumulations of iron in the matrix; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—loam or silt loam
Reaction—neutral or slightly alkaline

A horizon (where present):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Thickness—2 to 5 inches

Bw horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, sandy loam, or fine sandy loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 5 percent

C horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—loam or sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 14 percent

Birkbeck Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for MLRA 111

Birkbeck silt loam, in a cultivated area of Xenia-Birkbeck silt loams, 630 feet east and 2,080 feet south of the northwest corner of sec. 4, T. 17 N., R. 5 W., Montgomery County, Indiana; about 4 miles west of New Market; USGS New Market topographic quadrangle; 500,464 easting and 4,421,643 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; 10 percent yellowish brown (10YR 5/4) subsoil material; moderate fine granular structure; friable; strongly acid; clear smooth boundary.

BE—10 to 16 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure parting to moderate medium granular; friable; common fine and medium roots; many fine tubular pores; strongly acid; gradual smooth boundary.

Bt1—16 to 25 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine and medium roots; few fine tubular pores; common discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) masses of iron and manganese in the matrix; few continuous distinct light yellowish brown (10YR 6/4) clay depletions on faces of peds; very strongly acid; gradual smooth boundary.

Bt2—25 to 36 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; few fine pores; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) masses of iron and manganese in the matrix; few discontinuous distinct pale brown (10YR 6/3) clay depletions on faces of peds; very strongly acid; gradual smooth boundary.

Bt3—36 to 48 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; few fine pores; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) masses of iron and manganese in the matrix; few medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; few discontinuous distinct pale brown (10YR 6/3) clay depletions on faces of peds; very strongly acid; gradual smooth boundary.

Bt4—48 to 55 inches; yellowish brown (10YR 5/6) silt loam; weak coarse subangular blocky structure; firm; few discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) masses of iron and manganese in the matrix; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; few discontinuous distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; slightly acid; gradual smooth boundary.

2Bt5—55 to 60 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; firm; few discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct very dark grayish brown (10YR 3/2) masses of iron and manganese in the matrix; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; slightly alkaline; gradual smooth boundary.

2C—60 to 66 inches; yellowish brown (10YR 5/4) loam; massive; firm; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 70 inches

Thickness of the loess: 40 to 60 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Reaction—strongly acid to neutral

BE horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid to neutral

2Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture—loam, silty clay loam, silt loam, or clay loam
Reaction—moderately acid to slightly alkaline
Content of rock fragments—0 to 14 percent

2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam, silty clay loam, silt loam, or clay loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 14 percent

Brenton Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon for MLRA 111

Brenton silt loam, on a 2 percent footslope, in a cultivated field, 1,580 feet south and 320 feet west of the northeast corner of sec. 4, T. 20 N., R. 5 W., Montgomery County, Indiana; about 1 mile north of New Richmond; USGS Linden topographic quadrangle; 501,682 easting and 4,450,887 northing UTM zone 16, NAD 27:

Ap—0 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; neutral; clear smooth boundary.

Bt1—12 to 21 inches; brown (10YR 5/3) silty clay loam; moderate fine subangular blocky structure; firm; few fine roots; many fine pores; common continuous distinct gray (10YR 5/1) and dark gray (10YR 4/1) clay films on faces of peds; few fine faint light olive brown (2.5Y 5/4) accumulations of iron in the matrix; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear smooth boundary.

Bt2—21 to 28 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; many fine pores; common continuous distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

Bt3—28 to 34 inches; yellowish brown (10YR 5/6) silty clay loam; weak coarse subangular blocky structure; firm; few fine roots; common fine pores; common discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear smooth boundary.

2Bt4—34 to 44 inches; yellowish brown (10YR 5/6) clay loam; weak coarse subangular blocky structure; firm; common fine pores; common discontinuous distinct grayish brown (10YR 5/2) and gray (10YR 5/1) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent gravel; slightly acid; clear smooth boundary.

2Bt5—44 to 52 inches; yellowish brown (10YR 5/6) silt loam; weak coarse subangular blocky structure; firm; few fine pores; common discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; few prominent black (10YR 2/1) masses of iron and manganese in the matrix; many medium prominent grayish brown (10YR

5/2) iron depletions in the matrix; neutral; clear smooth boundary.

2C1—52 to 58 inches; yellowish brown (10YR 5/4) silt loam; massive; firm; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly alkaline; clear wavy boundary.

2C2—58 to 65 inches; yellowish brown (10YR 5/4) silt loam that has thin strata of loamy fine sand; massive; firm; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; strongly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 38 to 60 inches
Thickness of the solum: 40 to 60 inches
Thickness of the loess: 24 to 40 inches
Thickness of the mollic epipedon: 10 to 22 inches
Depth to carbonates: More than 40 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Reaction—moderately acid to slightly alkaline

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam
Reaction—moderately acid to neutral

2Bt horizon:
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—1 to 8
Texture—clay loam, silt loam, loam, or sandy loam
Reaction—moderately acid to slightly alkaline
Content of rock fragments—0 to 5 percent

2C horizon:
Hue—7.5YR to 5Y
Value—4 to 7
Chroma—1 to 8
Texture—typically stratified silt loam, loam, or sandy loam with thin strata of loamy sand, sand, or loamy fine sand
Reaction—moderately acid to moderately alkaline
Content of rock fragments—0 to 14 percent

Brouillett Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon for the Series

Brouillett silt loam, on a nearly level slope, in a pasture, 660 feet west and 330 feet south of the northeast corner of sec. 4, T. 15 N., R. 11 W., Edgar County, Illinois; about 2$^1/_2$ miles southeast of Chrisman; USGS Chrisman topographic quadrangle; lat. 39 degrees 47 minutes 31 seconds north and long. 87 degrees 38 minutes 15 seconds west; 445,418 easting and 4,404,660 northing UTM zone 16, NAD 27:

A1—0 to 11 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine and medium granular structure; friable; many very fine roots; slightly alkaline; gradual wavy boundary.

A2—11 to 19 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate very fine and fine subangular blocky structure; friable; common very fine roots; slightly alkaline; gradual wavy boundary.

A3—19 to 26 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; common very fine roots; slightly alkaline; clear wavy boundary.

Bg1—26 to 34 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; common very fine roots; many distinct very dark gray (10YR 3/1) organic coatings on faces of peds; common fine and medium rounded black (10YR 2/1) weakly cemented nodules of iron and manganese oxide throughout; slightly alkaline; gradual wavy boundary.

Bg2—34 to 42 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few distinct very dark gray (10YR 3/1) organic coatings in root channels; many medium and coarse prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine and medium rounded black (10YR 2/1) weakly cemented nodules of iron and manganese oxide throughout; 2 percent fine gravel; slightly alkaline; gradual wavy boundary.

Cg—42 to 60 inches; light brownish gray (2.5Y 6/2), stratified silt loam and loam; massive; friable; few very fine roots; many medium and coarse prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine and medium rounded black (10YR 2/1) weakly cemented nodules of iron and manganese oxide throughout; 2 percent fine gravel; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to carbonates: 40 to more than 60 inches

A or Ap horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam, loam, or silty clay loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture—silt loam, loam, or clay loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture—stratified silt loam, loam, sandy loam, or clay loam
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 14 percent

Camden Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 111

Camden silt loam, on a slope of 1 percent, in a cultivated field, 300 feet east and 1,640 feet south of the northwest corner of sec. 34, T. 23 N., R. 3 W., Tippecanoe County, Indiana; about 2 miles south of Monitor; USGS Lafayette East topographic quadrangle; 521,170 easting 4,471,760 northing UTM zone 16, NAD 27:

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; neutral; abrupt smooth boundary.

Bt1—9 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; firm; common fine roots; few fine pores; common continuous distinct brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.

Bt2—15 to 22 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common fine roots; common fine pores; common continuous distinct dark brown (7.5YR 3/4) clay films on faces of peds; neutral; clear smooth boundary.

Bt3—22 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common fine pores; common continuous distinct dark brown (7.5YR 3/2) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt4—29 to 33 inches; brown (7.5YR 4/4) loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; common continuous distinct dark brown (7.5YR 3/2) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt5—33 to 39 inches; brown (7.5YR 4/4) sandy loam; weak coarse subangular blocky structure; friable; common fine pores; common discontinuous distinct dark brown (7.5YR 3/2) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt6—39 to 50 inches; brown (7.5YR 4/4) fine sandy loam that has one 3-inch layer of gravelly sandy loam; weak coarse subangular blocky structure; firm; common fine pores; common continuous distinct dark brown (7.5YR 3/2) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt7—50 to 64 inches; dark yellowish brown (10YR 4/4) loam; weak coarse subangular blocky structure; friable; common fine pores; few discontinuous distinct dark brown (7.5YR 3/2) clay films on faces of peds; common medium faint yellowish brown (10YR 5/4) accumulations of iron in the matrix; slightly acid; clear smooth boundary.

2C—64 to 70 inches; yellowish brown (10YR 5/4) loam that has strata of sandy loam; massive; friable; few medium very dark grayish brown (10YR 3/2) iron and manganese accumulations; neutral.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 30 to 65 inches
Thickness of the loess: 24 to 40 inches
Depth to carbonates: More than 60 inches

Ap horizon:
Hue—10YR
Value—3 to 5 (Where value is 3, the horizon is less than 6 inches thick.)
Chroma—2 or 3
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or silt loam
Reaction—strongly acid to neutral

2Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—loam, fine sandy loam, sandy loam, silty clay loam, clay loam, sandy clay loam, or silt loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—stratified sandy loam, loam, or silt loam
Reaction—strongly acid to moderately alkaline
Content of rock fragments—0 to 13 percent

Cates Series

Taxonomic classification:, Loamy-skeletal, mixed, active, mesic Dystric Eutrudepts

Typical Pedon for the Series

Cates channery silt loam, on a northwest-facing slope of 30 percent, in an area of forestland; 2,000 feet east and 160 feet south of the northwest corner of sec. 21, T. 22 N., R. 6 W., Fountain County, Indiana; USGS Westpoint topographic quadrangle; lat. 40 degrees 20 minutes 40.2 seconds north and long. 87 degrees 6 minutes 15 seconds west; 491,153 easting and 4,465,800 northing UTM zone 16, NAD 27:

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.

A—1 to 4 inches; dark brown (10YR 3/3) channery silt loam, gray (2.5Y 5/1) dry; moderate medium granular structure; friable; many fine and medium roots throughout; 16 percent channers; moderately acid; abrupt smooth boundary.

Bw1—4 to 10 inches; yellowish brown (10YR 5/4) very channery silt loam; weak medium subangular blocky structure; friable; common fine and medium roots throughout; 46 percent channers; strongly acid; clear smooth boundary.

Bw2—10 to 17 inches; yellowish brown (10YR 5/4) very channery silt loam; moderate medium subangular blocky structure; friable; common fine and medium roots throughout; 47 percent channers; strongly acid; clear smooth boundary.

Bw3—17 to 26 inches; yellowish brown (10YR 5/6) very channery silt loam; moderate medium subangular blocky structure; firm; common fine and medium roots throughout; few patchy distinct black (10YR 2/1) manganese or iron and manganese accumulations on rock fragments; 53 percent channers; strongly acid; clear smooth boundary.

2C—26 to 36 inches; yellowish brown (10YR 5/4) extremely channery clay loam; massive; very firm; common fine and medium roots in cracks; 61 percent channers; strongly acid; abrupt irregular boundary.

2R—36 inches; yellowish brown (10YR 5/4), strongly cemented, fractured siltstone bedrock.

Range in Characteristics for MLRA 111

Depth to bedrock: 20 to 40 inches
Rock fragments: Dominantly channers but also flagstones; strongly or very strongly cemented

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—silt loam, loam, channery silt loam, or channery loam
Reaction—extremely acid to slightly acid
Content of rock fragments—0 to 34 percent

E horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam, loam, channery silt loam, or channery loam
Reaction—extremely acid to slightly acid
Content of rock fragments—0 to 34 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—channery or very channery silt loam or loam
Reaction—extremely acid to moderately acid
Content of rock fragments—20 to 59 percent

2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—very channery or extremely channery clay loam, silt loam, or loam
Reaction—extremely acid to moderately acid
Content of rock fragments—40 to 85 percent

2R horizon:
Kind of bedrock—strongly cemented, fractured siltstone

Chalmers Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon for MLRA 111

Chalmers silty clay loam, in a cultivated field, 1,840 feet west and 2,050 feet south of the northeast corner of sec. 31, T. 23 N., R. 3 W., Tippecanoe County, Indiana; about 2 miles northwest of Dayton; USGS Lafayette East topographic quadrangle; 517,316 easting and 4,471,676 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; firm; common fine roots; slightly acid; abrupt smooth boundary.

A—9 to 13 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; firm; common fine roots; few fine prominent grayish brown (2.5Y 5/2) iron depletions in the matrix; slightly acid; gradual smooth boundary.

Bg1—13 to 20 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; many fine pores; few continuous faint dark gray (10YR 4/1) and very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; gradual smooth boundary.

Bg2—20 to 30 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; many fine pores; few continuous faint dark gray (10YR 4/1) organic coatings on faces of peds; krotovinas, 2 inches in diameter, filled with very dark gray (10YR 3/1) silty clay loam; common medium prominent light olive brown (2.5Y 5/6) accumulations of iron in the matrix; neutral; gradual smooth boundary.

2Bg3—30 to 35 inches; grayish brown (10YR 5/2) clay loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; few fine roots; many fine pores; few discontinuous faint dark grayish brown (10YR 4/2) organic coatings on faces of peds; krotovinas, 2 inches in diameter, filled with very dark gray (10YR 3/1) silty clay loam; many coarse prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; 3 percent gravel; neutral; gradual smooth boundary.

2BCg—35 to 45 inches; grayish brown (10YR 5/2) loam; weak coarse subangular blocky structure; firm; few fine roots; many fine pores; few discontinuous faint dark grayish brown (10YR 4/2) organic coatings on vertical faces of peds; many coarse prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; 5 percent gravel; slightly alkaline; gradual wavy boundary.

2C—45 to 60 inches; yellowish brown (10YR 5/4) loam; weak medium platy fragments; very firm; common prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; common medium distinct gray (10YR 6/1) iron depletions in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 40 to 60 inches
Thickness of the loess: 20 to 40 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or silt loam
Reaction—moderately acid to neutral

Bg horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam
Reaction—slightly acid to slightly alkaline

2Bg and 2BCg horizons:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—clay loam, silty clay loam, or loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 10 percent

2C horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 4
Texture—silt loam or loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 10 percent

Coloma Series

Taxonomic classification: Mixed, mesic Lamellic Udipsamments

Typical Pedon for MLRA 111

Coloma loamy sand, in a cultivated field, 1,170 feet west and 875 feet south of the center of sec. 1, T. 33 N., R. 6 E., Kosciusko County, Indiana; about 1 1/4 miles north of Oswego; USGS Leesburg topographic quadrangle; 601,948 easting and 4,577,158 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; dark grayish brown (10R 4/2) loamy sand, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary.

Bw1—8 to 16 inches; dark yellowish brown (10YR 4/4) sand, very pale brown (10YR 7/3) dry; single grain; loose; few fine roots; moderately acid; clear wavy boundary.

Bw2—16 to 28 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine roots; moderately acid; clear wavy boundary.

E and Bt—28 to 52 inches; yellowish brown (10YR 5/4) sand (E); single grain; loose; lamellae of dark yellowish brown (10YR 4/4) loamy sand (Bt) that are 0.5 to 1.0 inch thick and 2 to 6 inches apart and have a cumulative thickness of 5 inches; weak medium subangular blocky structure; very friable; few fine roots; slightly acid; abrupt wavy boundary.

C—52 to 60 inches; yellowish brown (10YR 5/4) sand; single grain; loose; slightly acid.

Range in Characteristics for MLRA 111

Depth to the first lamellae: 20 to 40 inches
Depth to the base of the lamellae: 40 to more than 80 inches
Total thickness of the lamellae: Less than 6 inches to a depth of 80 inches
Content of rock fragments: 0 to 14 percent throughout the profile

Ap or A horizon:
Hue—7.5YR or 10YR
Value—2 or 4
Chroma—1 to 3
Texture—loamy sand or sand
Reaction—very strongly acid to slightly acid

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—sand, fine sand, loamy fine sand, or loamy sand
Reaction—very strongly acid to slightly acid

E and Bt horizon:
Hue—5YR to 10YR
Value—4 to 7 (E part), 3 to 5 (Bt part)
Chroma—3 to 6
Texture—loamy sand, sandy loam, or sand
Reaction—very strongly acid to neutral

C horizon:
Hue—5YR to 10YR
Value—4 to 7
Chroma—3 to 6
Reaction—strongly acid to neutral

Crane Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aquic Argiudolls

Typical Pedon for the Series

Crane silt loam, in a cultivated field, 600 feet east and 140 feet north of the southwest corner of sec. 33, T. 26 N., R. 9 W., Benton County, Indiana; about 2 miles west and 2 miles south of Earl Park; USGS Earl Park topographic quadrangle; 461,505 easting and 4,499,849 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; common medium and fine roots; 3 percent gravel; slightly acid; abrupt smooth boundary.

A—10 to 15 inches; very dark gray (10YR 3/1) loam, dark grayish brown (10YR 4/2) dry; weak medium subangular blocky structure; friable; common medium and fine roots; 3 percent gravel; neutral; abrupt smooth boundary.

Bt1—15 to 21 inches; yellowish brown (10YR 5/4) clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common black (10YR 2/1) wormcasts in root channels; many very dark grayish brown (10YR 3/2) krotovinas; many medium distinct light olive brown (2.5Y 5/6) accumulations of iron in the matrix; few fine distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; 2 percent gravel; neutral; clear wavy boundary.

Bt2—21 to 36 inches; dark yellowish brown (10YR 4/4) clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many very dark grayish brown (10YR 3/2) krotovinas; many medium distinct strong brown (7.5YR 5/6) and common medium distinct dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; few medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 3 percent gravel; neutral; gradual wavy boundary.

2Bt3—36 to 49 inches; dark yellowish brown (10YR 4/4) gravelly sandy clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common discontinuous distinct dark gray (10YR 4/1) clay films on faces of peds; many very dark grayish brown (10YR 3/2) krotovinas; many medium prominent strong brown (7.5YR 5/8) and common medium distinct dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; 20 percent gravel; neutral; gradual wavy boundary.

2Bt4—49 to 53 inches; brown (10YR 5/3) gravelly sandy clay loam; weak medium subangular blocky structure; friable; few discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many very dark grayish brown (10YR 3/2) krotovinas; many medium prominent brownish yellow (10YR 6/8) and strong brown (7.5YR 5/8) and common medium distinct dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; 20 percent gravel; neutral; abrupt irregular boundary.

3C—53 to 60 inches; pale brown (10YR 6/3) very gravelly loamy coarse sand; single grain; loose; many very dark grayish brown (10YR 3/2) krotovinas; 40 percent gravel; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 40 to 60 inches

Ap and A horizons:

Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 3 percent

Bt horizon:

Hue—10YR
Value—3 to 6
Chroma—1 to 6
Texture—clay loam or loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 14 percent

2Bt horizon:

Hue—10YR
Value—3 to 6
Chroma—1 to 6
Texture—gravelly sandy clay loam or gravelly sandy loam
Reaction—moderately acid to neutral
Content of rock fragments—15 to 30 percent

3C horizon:

Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—gravelly or very gravelly coarse sand or gravelly or very gravelly loamy coarse sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 50 percent

Crosby Series

Taxonomic classification: Fine, mixed, active, mesic Aeric Epiaqualfs

Typical Pedon for the Series

Crosby silt loam, in a cultivated field, 1,000 feet north and 330 feet west of the southeast corner of sec. 27, T. 18 N., R. 9 E., Henry County, Indiana; about 2 miles north of Cadiz; USGS New Castle West topographic quadrangle; 629,594 easting and 4,426,238 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light gray (10YR 7/2) dry; moderate medium granular structure; friable; many fine roots; strongly acid; abrupt smooth boundary.

BE—8 to 11 inches; grayish brown (10YR 5/2) silt loam; moderate thin platy structure; friable; common fine roots; few fine distinct yellowish brown (10YR 5/4) accumulations of iron in the matrix; moderately acid; clear wavy boundary.

Bt1—11 to 14 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; firm; few fine roots; many discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; strongly acid; clear smooth boundary.

2Bt2—14 to 22 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; many continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; 2 percent gravel; strongly acid; clear smooth boundary.

2Bt3—22 to 28 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; many discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds and as linings in pores; many medium distinct yellowish brown (10YR 5/6) and prominent strong brown (7.5YR 5/8) accumulations of iron in the matrix; 3 percent gravel; neutral; clear smooth boundary.

2BCt—28 to 36 inches; brown (10YR 5/3) loam; weak coarse subangular blocky structure; firm; few discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds and as linings in pores; common fine distinct yellowish brown (10YR 5/6) and few fine faint yellowish brown (10YR 5/4) accumulations of iron in the matrix; 7 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cd—36 to 80 inches; brown (10YR 5/3) loam; massive; very firm; common fine distinct yellowish brown (10YR 5/6) and few fine faint yellowish brown (10YR 5/4) accumulations of iron in the matrix; 7 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 20 to 40 inches
Thickness of the loess: 0 to 22 inches
Depth to carbonates: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5 (value of 3 only in the A horizon)
Chroma—2 or 3
Texture—silt loam, loam, or fine sandy loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 5 percent

BE horizon:
Hue—10YR
Value—4 to 6
Chroma—2
Texture—silt loam or loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 5 percent

Bt and 2Bt horizons:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silty clay loam, silt loam, silty clay, clay, or clay loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent

2BCt or CB horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, loam, or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 13 percent

2Cd or Cd horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 13 percent

Drummer Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon for MLRA 111

Drummer silty clay loam, on a nearly level slope, in a cultivated field, 1,150 feet east and 700 feet south of the northwest corner of sec. 7, T. 20 N., R. 4 W., Montgomery County, Indiana; about 1 mile northwest of Linden; USGS Linden topographic quadrangle; 506,883 easting and 4,449,782 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; firm; neutral; abrupt smooth boundary.

A—10 to 15 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; weak medium subangular blocky structure; firm; many fine roots; neutral; gradual smooth boundary.

Bg1—15 to 26 inches; gray (10YR 5/1) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; many fine roots; few fine pores; few continuous faint dark gray (10YR 4/1) organic coatings on faces of peds; few fine black (10YR 2/1) iron and manganese accumulations; few medium prominent olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; clear smooth boundary.

Bg2—26 to 37 inches; gray (10YR 5/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few fine pores; few discontinuous faint dark gray (10YR 4/1) organic coatings on faces of peds; few fine black (10YR 2/1) iron and manganese accumulations; few fine prominent olive brown (2.5Y 4/4) accumulations of iron in the matrix; few clean sand grains; neutral; clear smooth boundary.

Bg3—37 to 49 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few fine pores; few discontinuous faint dark gray (10YR 4/1) organic coatings on faces of peds; many medium distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; gradual smooth boundary.

2Bg4—49 to 57 inches; mottled yellowish brown (10YR 5/6) and grayish brown (10YR 5/2) loam; weak coarse subangular blocky structure; slightly alkaline; clear smooth boundary.

2Cg—57 to 65 inches; mottled yellowish brown (10YR 5/6) and grayish brown (10YR 5/2), stratified silt loam and loam; massive; firm; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 42 to 65 inches
Thickness of the loess: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches

Ap and A horizons:
Hue—10YR to 5Y or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Reaction—moderately acid to slightly alkaline

Bg horizon:
Hue—10YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 4
Texture—silty clay loam or silt loam
Reaction—moderately acid to slightly alkaline

2Bg horizon:
Hue—7.5YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 6
Texture—loam, silt loam, or sandy loam
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 7 percent

2Cg horizon:
Hue—7.5YR to 5Y or neutral
Value—4 to 7
Chroma—0 to 8
Texture—stratified loam, sandy loam, sandy clay loam, clay loam, silt loam, silty clay loam, or loamy sand
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 14 percent

Edwardsville Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon for MLRA 111

Edwardsville silt loam, on a nearly level slope, in a cultivated field, 1,100 feet north and 100 feet west of the southeast corner of sec. 29, T. 20 N., R. 8 W., Fountain County, Indiana; USGS Stonebluff topographic quadrangle; lat. 40 degrees 9 minutes 10.7 seconds north and long. 87 degrees 20 minutes 23.1 seconds west; 471,064 easting and 4,444,591 northing UTM zone 16, NAD 27:

Ap1—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium platy structure; friable; many fine and medium roots throughout; moderately acid; clear smooth boundary.

Ap2—6 to 12 inches; very dark grayish brown (10YR 3/2) silt loam; moderate medium subangular blocky structure parting to moderate medium granular; friable; many fine and medium roots throughout; moderately acid; abrupt smooth boundary.

BE—12 to 16 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine subangular blocky structure; friable; common fine and medium roots throughout; common continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common fine faint brown (10YR 4/3) accumulations of iron in the matrix; common continuous distinct dark grayish brown (10YR 4/2) clay depletions on faces of peds; moderately acid; clear smooth boundary.

Bt1—16 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots throughout; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine and medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common medium irregular black (10YR 2/1) masses of iron and manganese throughout; common fine distinct gray (10YR 5/1) iron depletions in the matrix; slightly acid; clear smooth boundary.

Bt2—26 to 41 inches; light yellowish brown (2.5Y 6/4) silty clay loam; moderate medium subangular blocky structure; firm; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; many fine and medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine faint brown (10YR 5/3) accumulations of iron in the matrix; common medium irregular black (10YR 2/1) masses of iron and manganese throughout; common fine distinct gray (10YR 5/1) iron depletions in the matrix; slightly acid; clear smooth boundary.

Bt3—41 to 54 inches; light yellowish brown (2.5Y 6/4) silt loam; weak medium subangular blocky structure; friable; few continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; very few continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; many fine and medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine distinct gray (10YR 5/1) iron depletions in the matrix; slightly acid; clear smooth boundary.

BC—54 to 62 inches; light yellowish brown (2.5Y 6/4) silt loam; weak medium and coarse subangular blocky structure; friable; very few continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; many fine and medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine distinct gray (10YR 5/1) iron depletions in the matrix; slightly effervescent; slightly alkaline; clear smooth boundary.

C—62 to 80 inches; light yellowish brown (2.5Y 6/4) silt loam; weak coarse subangular blocky structure; friable; very few continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; many fine and medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine distinct gray (10YR 6/1) iron depletions in the matrix; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 70 inches
Thickness of the mollic epipedon: 12 to 24 inches
Depth to carbonates: More than 40 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—moderately acid to neutral

BE horizon (where present):
Hue—10YR
Value—4
Chroma—2
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—2 to 4
Texture—silty clay loam or silt loam
Reaction—strongly acid to slightly alkaline

BC horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—2 to 4
Texture—silty clay loam or silt loam
Reaction—moderately acid to slightly alkaline

C horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 4
Reaction—moderately acid to moderately alkaline

Eel Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts

Typical Pedon for the Series

Eel silt loam, on a nearly level slope, in a cultivated field, 220 feet south and 540 feet west of the northeast corner of sec. 15, T. 21 N., R. 13 E., Randolph County, Indiana; about 2 miles southwest of Ridgeville; USGS Ridgeville topographic quadrangle; 663,892 easting and 4,460,261 northing UTM zone 16, NAD 27:

Ap1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; few fine roots; few fine pores; neutral; clear smooth boundary.

Ap2—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; few fine roots; few fine pores; neutral; clear smooth boundary.

Bw1—10 to 15 inches; brown (10YR 4/3) loam; weak medium and coarse subangular blocky structure; friable; few fine roots; many fine pores; many fine faint brown (10YR 5/3) and few medium faint dark yellowish brown (10YR 4/4) accumulations of iron in the matrix; neutral; clear smooth boundary.

Bw2—15 to 22 inches; brown (10YR 5/3) loam; moderate medium subangular blocky structure;

friable; few fine roots; many fine pores; few fine faint brown (10YR 4/3) accumulations of iron in the matrix; few fine faint brown (7.5YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

Bg—22 to 34 inches; dark gray (10YR 4/1) loam with thin strata of silty clay loam; moderate medium subangular blocky structure; friable; few fine and medium pores; few medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; few fine faint dark brown (7.5YR 3/2) iron depletions in the matrix; neutral; clear smooth boundary.

BC—34 to 42 inches; pale brown (10YR 6/3) loam with thin strata of silty clay loam; weak medium subangular blocky structure; friable; many medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; many medium distinct gray (10YR 6/1) iron depletions in the matrix; slightly effervescent; slightly alkaline; clear wavy boundary.

Cg—42 to 60 inches; light brownish gray (10YR 6/2) loam with thin strata of silty clay loam and sandy loam; massive; friable; few medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; many fine faint gray (10YR 5/1) iron depletions in the matrix; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Reaction—slightly acid or neutral

Bw and Bg horizons:
Hue—10YR
Value—4 or 5
Chroma—1 to 6
Texture—silt loam, loam, or clay loam
Reaction—slightly acid to slightly alkaline

BC or BCg horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 6
Texture—silt loam, loam, fine sandy loam, or sandy loam; also, thin strata of silty clay loam or clay loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 7 percent

C or Cg horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—1 to 4
Texture—loam, fine sandy loam, or sandy loam; also, strata of silt loam, silty clay loam, clay loam, loamy sand, or sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 14 percent

Elston Series

Taxonomic classification: Coarse-loamy, mixed, active, mesic Typic Argiudolls

Typical Pedon for the Series

Elston sandy loam, on a convex slope of 1 percent, in a cultivated area, 1,300 feet east and 500 feet north of the center of sec. 14, T. 13 N., R. 9 W., Vigo County, Indiana; about 3 miles west of Miltonville; USGS New Goshen topographic quadrangle; lat. 39 degrees 34 minutes 30 seconds north and long. 87 degrees 22 minutes 40 seconds west; 467,554 easting and 4,380,456 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark brown (10YR 2/2) sandy loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; very friable; moderately acid; abrupt smooth boundary.

A—10 to 20 inches; very dark brown (10YR 2/2) sandy loam, dark grayish brown (10YR 4/2) dry; weak coarse subangular blocky structure; friable; moderately acid; gradual wavy boundary.

Bt1—20 to 34 inches; dark brown (7.5YR 3/4) sandy loam, light brownish gray (10YR 6/2) dry; weak coarse subangular blocky structure; very friable; few faint dark brown (7.5YR 3/2) clay films on some sand grains and as bridges between sand grains; few pebbles; moderately acid; gradual wavy boundary.

Bt2—34 to 45 inches; brown (7.5YR 4/4) loamy sand; weak coarse subangular blocky structure; very friable; few distinct dark brown (7.5YR 3/2) clay films on sand grains and as bridges between sand grains; few pebbles; moderately acid; gradual wavy boundary.

BC—45 to 72 inches; brown (7.5YR 4/4) loamy sand; single grain; loose; few pebbles; moderately acid; clear wavy boundary.

C—72 to 80 inches; pale brown (10YR 6/3) fine sand and sand; single grain; loose; few pebbles; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 20 inches
Content of rock fragments: 0 to 14 percent throughout the profile

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—sandy loam, loam, or fine sandy loam
Reaction—strongly acid to neutral

Bt horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 6
Texture—loam, sandy loam, sandy clay loam, or loamy sand
Reaction—strongly acid to slightly acid

BC horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—2 to 6
Texture—loamy sand or sand
Reaction—strongly acid to slightly acid

C horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—sand or fine sand; also, strata of gravelly sand below a depth of 5 feet
Reaction—moderately acid to moderately alkaline

Fairpoint Series

Taxonomic classification: Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents

Typical Pedon for the Series

Fairpoint gravelly clay loam, on a slope of 12 percent, in an area of clover, 2,100 feet north and 850 feet east, of the southwest corner of sec. 27, T. 9 N., R. 6 W., Kirkwood Township, Belmont County, Ohio; USGS Fairview topographic quadrangle; lat. 40 degrees 4 minutes 28.37 seconds north and long. 81 degrees 12 minutes 38.49 seconds west; 482,035 easting and 4,435,853 northing UTM zone 17, NAD 27:

Ap—0 to 5 inches; light brownish gray (2.5Y 6/2) gravelly clay loam; moderate medium and coarse granular structure; friable; many roots; 15 percent, by volume, fragments of sandstone, 5 percent, by volume, fragments of siltstone, and few fragments of coal; neutral; abrupt smooth boundary.

C1—5 to 17 inches; variegated light brownish gray (2.5Y 6/2) (70 percent), brown (10YR 4/3) (20 percent), and gray (10YR 5/1) (10 percent) very gravelly clay loam; massive; firm; few roots in vertical cracks; 30 percent, by volume, fragments of sandstone, 5 percent, by volume, fragments of siltstone, and few fragments of coal; slightly acid; clear smooth boundary.

C2—17 to 60 inches; variegated light brownish gray (2.5Y 6/2) (70 percent), brown (10YR 4/3) (20 percent), and gray (10YR 5/1) (10 percent) very gravelly clay loam; massive; firm; 35 percent, by volume, fragments of sandstone, 10 percent, by volume, fragments of siltstone, and few fragments of coal; slightly acid.

Range in Characteristics for MLRA 111

Rock fragments: Consisting of siltstone, shale, sandstone, limestone, and some coal; commonly ranging from 2 millimeters to 25 centimeters in diameter, but including stones and boulders

Ap horizon in unreclaimed areas:
Hue—7.5YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 6
Texture—the gravelly, very gravelly, channery, very channery, parachannery, or very parachannery analogs of clay loam, silty clay loam, loam, or silt loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—15 to 59 percent, by volume

C horizon in unreclaimed areas:
Hue—7.5YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 8
Texture—the gravelly to extremely gravelly, parachannery to extremely parachannery, or channery to extremely channery analogs of clay loam, silty clay loam, silt loam, or loam
Reaction—moderately acid to neutral
Content of rock fragments—20 to 80 percent

Ap horizon in reclaimed areas:
Hue—7.5YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 6
Texture—loam, silt loam, clay loam, or silty clay loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—0 to 14 percent

C horizon in reclaimed areas:
Hue—7.5YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 8
Texture—the gravelly to extremely gravelly, parachannery to extremely parachannery, or channery to extremely channery analogs of clay loam, silty clay loam, silt loam, or loam
Reaction—moderately acid to neutral
Content of rock fragments—20 to 80 percent

Fincastle Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs

Typical Pedon for the Series

Fincastle silt loam, on a slope of 1 percent, in a cultivated field, 2,360 feet east and 317 feet south of the northwest corner of sec. 23, T. 12 N., R. 10 E., Rush County, Indiana; about 4 miles east and 1 mile south of Milroy; USGS Milroy topographic quadrangle; 639,340 easting and 4,371,365 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many fine and very fine roots; neutral; abrupt smooth boundary.

Eg—10 to 13 inches; grayish brown (10YR 5/2) silt loam; weak fine subangular blocky structure; friable; common fine and very fine roots; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine and common very fine roots; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; moderately acid; clear wavy boundary.

Bt2—21 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

2Bt3—27 to 34 inches; yellowish brown (10YR 5/4) clay loam; moderate coarse subangular blocky structure; firm; few fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 3 percent gravel; neutral; clear wavy boundary.

2Bt4—34 to 50 inches; brown (10YR 5/3) clay loam; weak fine subangular blocky structure; firm; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; few very dark brown (7.5YR 2.5/2) masses of iron and manganese in the matrix; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 2 percent gravel; slightly alkaline; abrupt wavy boundary.

2BCt—50 to 59 inches; yellowish brown (10YR 5/4) loam; weak medium and coarse subangular blocky structure; very firm; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 6 percent gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

2Cd—59 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; 9 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 40 to 60 inches
Thickness of the loess: 22 to 40 inches
Depth to carbonates: 35 to 60 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Reaction—strongly acid to neutral

Eg horizon:
Hue—10YR
Value—5 or 6

Chroma—2
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silt loam
Reaction—very strongly acid to slightly acid

2Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—clay loam, silty clay loam, or loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—1 to 7 percent

2BCt horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—clay loam or loam
Reaction—neutral to moderately alkaline
Content of rock fragments—1 to 8 percent

2Cd horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 14 percent

Genesee Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluventic Eutrudepts

Typical Pedon for the Series

Genesee silt loam, on a nearly level slope, in a cultivated field, 490 feet south and 325 feet east of the northwest corner of SW1/4 sec. 32, T. 15 N., R. 13 E., Fayette County, Indiana; about one-half mile northwest of Waterloo; USGS Brownsville topographic quadrangle; 662,955 easting and 4,396,700 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, light gray (10YR 7/2) dry; moderate fine and medium granular structure; friable; neutral; abrupt smooth boundary.
Bw1—8 to 14 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure parting to weak medium granular; friable; slightly alkaline; clear smooth boundary.
Bw2—14 to 24 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure parting to weak medium granular; friable; thin strata of loam and silt loam; slightly alkaline; gradual smooth boundary.
Bw3—24 to 32 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure parting to weak fine granular; friable; thin strata of loam and silt loam; slightly effervescent; moderately alkaline; gradual wavy boundary.
C—32 to 60 inches; brown (10YR 5/3), stratified loam, sandy loam, and silt loam; massive; friable; slightly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam, loam, silty clay loam, sandy loam, or fine sandy loam
Reaction—neutral to moderately alkaline

Bw horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—dominantly silt loam or loam; in some pedons, thin layers of silty clay loam, clay loam, or sandy loam
Reaction—slightly alkaline or moderately alkaline

C horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—loam, silt loam, or sandy loam with strata of loamy very fine sand, loamy sand, or sand
Reaction—slightly alkaline or moderately alkaline

Judyville Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon for the Series

Judyville fine sandy loam, on a southeast-facing slope of 40 percent, in an area of forestland, 2,160 feet north and 1,600 feet west of the southeast corner of sec. 11, T. 21 N., R. 8 W., Warren County, Indiana; on the southern edge of Williamsport; USGS Williamsport topographic quadrangle; lat. 40 degrees 16 minutes 42 seconds north and long. 87 degrees 17 minutes 12 seconds west; 475,630 easting and 4,458,490 northing UTM zone 16, NAD 27:

Oi—0 to 1 inch; partially decomposed leaves from mixed deciduous trees.

A—1 to 5 inches; dark brown (10YR 3/3) fine sandy loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many fine and medium roots throughout; 8 percent channers; very strongly acid; clear smooth boundary.

BA—5 to 9 inches; brown (10YR 4/3) fine sandy loam; weak medium subangular blocky structure; friable; many fine and medium roots throughout; 8 percent channers; extremely acid; clear smooth boundary.

Bw1—9 to 20 inches; yellowish brown (10YR 5/4) extremely channery fine sandy loam; weak fine and medium subangular blocky structure; friable; common fine and medium roots throughout; 63 percent channers; very strongly acid; clear smooth boundary.

Bw2—20 to 28 inches; yellowish brown (10YR 5/4) extremely channery fine sandy loam; weak fine subangular blocky structure; friable; 65 percent channers; very strongly acid; clear smooth boundary.

Bw3—28 to 34 inches; yellowish brown (10YR 5/4) very channery fine sandy loam; weak fine subangular blocky structure; friable; 57 percent channers; very strongly acid; abrupt wavy boundary.

R—34 inches; strongly cemented sandstone bedrock.

Range in Characteristics for MLRA 111

Depth to bedrock: 20 to 40 inches

A horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—fine sandy loam, sandy loam, loam, or the channery analogs of those textures
Reaction—extremely acid to moderately acid
Content of rock fragments—0 to 20 percent

BA horizon:
Hue—10YR
Value—3 or 4
Chroma—3
Texture—fine sandy loam, sandy loam, channery fine sandy loam, or channery sandy loam
Reaction—extremely acid to strongly acid
Content of rock fragments—0 to 20 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—very channery or extremely channery fine sandy loam or very channery or extremely channery sandy loam
Reaction—extremely acid to strongly acid
Content of rock fragments—40 to 85 percent

CB horizon (where present):
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—very channery or extremely channery fine sandy loam or very channery or extremely channery sandy loam
Reaction—extremely acid to strongly acid
Content of rock fragments—40 to 85 percent

R horizon:
Kind of bedrock—strongly cemented, fractured sandstone

Kendallville Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for the Series

Kendallville silt loam, on a slope of 4 percent, in a timothy meadow, 3,140 feet north of State Highway 161 and 1,300 feet east of Madden Road; about 1 mile northeast of Mutual, Champaign County, Ohio; USGS Urbana topographic quadrangle; lat. 40 degrees 5 minutes 29 seconds north and long. 83 degrees 37 minutes 42 seconds west; 275,932 easting and 4,441,012 northing UTM zone 17, NAD 27:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine and common medium roots; moderately acid; abrupt smooth boundary.

Bt1—7 to 11 inches; brown (7.5YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; many fine and common medium roots; few faint brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt2—11 to 15 inches; brown (7.5YR 4/4) clay loam; strong fine subangular blocky structure; very firm; common fine roots; many distinct brown (7.5YR 4/4) clay films on faces of peds; 10 percent gravel; strongly acid; clear smooth boundary.

2Bt3—15 to 22 inches; brown (7.5YR 4/4) gravelly clay; strong medium and coarse subangular blocky structure; very firm; many distinct brown (7.5YR 4/4) clay films on faces of peds and on pebbles; 20 percent gravel; moderately acid; clear wavy boundary.

2Bt4—22 to 30 inches; yellowish brown (10YR 5/4) gravelly loam; weak coarse subangular blocky structure; firm; common distinct dark brown (7.5YR 3/2) clay films on faces of peds and on pebbles; 30 percent gravel; slightly alkaline; abrupt wavy boundary.

3BC—30 to 34 inches; yellowish brown (10YR 5/4) loam; massive; firm; few distinct dark brown (7.5YR 3/2) clay films in voids; 3 percent rock fragments; strongly effervescent; moderately alkaline; gradual wavy boundary.

3Cd—34 to 60 inches; yellowish brown (10YR 5/4) loam; massive; very firm; 3 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 25 to 40 inches
Thickness of the loess: 0 to 18 inches
Depth to carbonates: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—silt loam, loam, or sandy loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 14 percent

Bt horizon (where present):
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid to moderately acid

2Bt horizon:
Hue—5YR to 10YR
Value—3 or 5
Chroma—3 to 6
Texture—clay loam, gravelly loam, sandy clay loam, loam, gravelly clay, or clay
Reaction—moderately acid to slightly alkaline
Content of rock fragments—5 to 30 percent

3BC and 3Cd horizons:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, clay loam, gravelly loam, or gravelly clay loam
Reaction—neutral to moderately alkaline
Content of rock fragments—2 to 30 percent

Lafayette Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon for the Series

Lafayette silt loam, on a slope of 1 percent, in a cultivated field, 1,800 feet west and 400 feet north of the southeast corner of sec. 8, T. 22 N., R. 9 W., Warren County, Indiana; about 1 mile east of Stewart; USGS West Lebanon topographic quadrangle; 460,946 easting and 4,467,720 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many very fine roots; moderately acid; abrupt smooth boundary.

A—10 to 13 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; friable; many very fine roots; slightly acid; clear wavy boundary.

Bt1—13 to 22 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; many very fine roots; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common continuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

Bt2—22 to 33 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common discontinuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

2Bt3—33 to 47 inches; yellowish brown (10YR 5/4) sandy clay loam; moderate medium subangular blocky structure; friable; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few discontinuous distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; common medium prominent yellowish red (5YR 5/6) iron and manganese oxide accumulations; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 10 percent gravel; slightly acid; clear wavy boundary.

3Bt4—47 to 61 inches; brown (10YR 5/3) gravelly sandy loam; weak coarse subangular blocky structure; friable; few discontinuous distinct dark grayish brown (10YR 4/2) clay bridges between sand grains; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; many medium prominent yellowish red (5YR 5/6) iron and manganese accumulations; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 20 percent gravel; neutral; clear wavy boundary.

3Cg—61 to 70 inches; grayish brown (10YR 5/2) very gravelly coarse sand; single grain; loose; 40 percent gravel; slightly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 55 to 70 inches
Thickness of the loess: 24 to 40 inches

Ap and A horizons:
Hue—10YR
Value—3
Chroma—1 or 2
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 6
Texture—silt loam or silty clay loam
Reaction—strongly acid to slightly acid

2Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Reaction—moderately acid or slightly acid
Content of rock fragments—5 to 14 percent

3Bt horizon:
Hue—10YR or neutral
Value—4 or 5
Chroma—0 to 3
Texture—gravelly sandy loam or gravelly loam
Reaction—slightly acid or neutral
Content of rock fragments—15 to 34 percent

3Cg horizon:
Hue—10YR
Value—5
Chroma—1 to 3
Texture—gravelly loamy coarse sand, very gravelly coarse sand, or gravelly coarse sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—25 to 50 percent

Landes Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for MLRA 111

Landes sandy loam, 2,520 feet north and 300 feet west of the southeast corner of sec. 31, T. 19 N., R. 8 W., Fountain County, Indiana; USGS Veedersburg topographic quadrangle; lat. 40 degrees 2 minutes 51.95 seconds north and long. 87 degrees 21 minutes 21.91 seconds west; 469,626 easting and 4,432,919 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; dark brown (10YR 3/3) sandy loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; 4 percent gravel; neutral; abrupt smooth boundary.

Bw1—10 to 17 inches; dark brown (10YR 3/3) loam; weak medium subangular blocky structure; friable; 4 percent gravel; neutral; clear smooth boundary.

Bw2—17 to 30 inches; brown (10YR 4/3) sandy loam; weak medium subangular blocky structure; friable; 4 percent gravel; neutral; gradual smooth boundary.

BC—30 to 38 inches; brown (10YR 5/3) loamy sand; weak coarse subangular blocky structure; very friable; 4 percent gravel; neutral; clear smooth boundary.

C—38 to 60 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; 4 percent gravel; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 22 to 40 inches
Depth to carbonates: Less than 40 inches in some pedons
Reaction: Moderately acid to moderately alkaline throughout the profile

Ap or A horizon:
Hue—10YR
Value—2 or 3

Chroma—1 to 3
Texture—sandy loam, fine sandy loam, or very fine sandy loam
Content of rock fragments—0 to 14 percent

Bw horizon:
Hue—10YR
Value—3 to 6
Chroma—2 to 4
Texture—loam, fine sandy loam, very fine sandy loam, sandy loam, loamy fine sand, or loamy very fine sand
Content of rock fragments—0 to 10 percent

BC and C horizons:
Hue—2.5YR to 10YR
Value—4 to 6
Chroma—1 to 4
Texture—sand, fine sand, very fine sand, loamy sand, loamy fine sand, loamy very fine sand, sandy loam, fine sandy loam, very fine sandy loam, loam, or silt loam
Content of rock fragments—0 to 10 percent

Lash Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for MLRA 111

Lash fine sandy loam, in the SW1/4SE1/4 sec. 23, T. 22 N., R. 7 W., Fountain County, Indiana; USGS Attica topographic quadrangle; lat. 40 degrees 20 minutes 1 second north and long. 87 degrees 10 minutes 14 seconds west; 485,513 easting and 4,464,600 northing UTM zone 16, NAD 27:

Ap—0 to 18 inches; dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; few fine roots; slightly effervescent; slightly alkaline; abrupt smooth boundary.
Bw1—18 to 30 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine subangular blocky structure; very friable; strongly effervescent; moderately alkaline; gradual smooth boundary.
Bw2—30 to 40 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; very friable; strongly effervescent; moderately alkaline; clear smooth boundary.
C—40 to 60 inches; light yellowish brown (10YR 6/4), stratified sandy loam and loamy sand; massive; very friable; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 23 inches
Carbonates: Evident throughout the profile
Reaction: Slightly alkaline or moderately alkaline throughout the profile

A or Ap horizon:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture—fine sandy loam, silt loam, or loam

Bw horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—silt loam, loam, sandy loam, loamy sand, or fine sandy loam

C horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—stratified loamy sand, loamy fine sand, sandy loam, fine sandy loam, or fine sand
Content of rock fragments—0 to 13 percent

Lauramie Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Mollic Hapludalfs

Typical Pedon for the Series

Lauramie silt loam, on a slope of 1 percent, in a cultivated field, 880 feet west and 975 feet south of the center of sec. 26, T. 22 N., R. 4 W., Tippecanoe County, Indiana; approximately 4 miles northwest of Stockwell, Indiana; USGS Stockwell topographic quadrangle; 513,533 easting and 4,463,461 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate medium granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.
Bt1—8 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; firm; common fine roots; common fine vesicular pores; common continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—12 to 19 inches; brown (10YR 4/3) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine vesicular pores; common continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt3—19 to 25 inches; brown (7.5YR 4/4) clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine vesicular pores; common continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 2 percent gravel; moderately acid; gradual smooth boundary.

2Bt4—25 to 35 inches; brown (7.5YR 4/4) loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine tubular pores; common continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 2 percent gravel; moderately acid; gradual smooth boundary.

2Bt5—35 to 44 inches; brown (7.5YR 4/4) loam; weak coarse subangular blocky structure; firm; few fine roots; common fine tubular pores; common continuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; 3 percent gravel; slightly acid; gradual smooth boundary.

2Bt6—44 to 51 inches; brown (7.5YR 4/4) loam; weak coarse subangular blocky structure; firm; common fine tubular pores; common discontinuous distinct dark brown (7.5YR 3/2) organo-clay films on faces of peds; common continuous distinct very dark gray (10YR 3/1) organo-clay films on surfaces along pores; 5 percent gravel; slightly acid; gradual smooth boundary.

3Bt7—51 to 58 inches; brown (7.5YR 4/4) sandy clay loam; weak coarse subangular blocky structure; firm; common fine tubular pores; common discontinuous distinct dark brown (7.5YR 3/2) organo-clay films on faces of peds; common continuous distinct very dark gray (10YR 3/1) organo-clay films on surfaces along pores; 5 percent gravel; neutral; clear smooth boundary.

3BCt—58 to 63 inches; yellowish brown (10YR 5/4) fine sandy loam; weak coarse subangular blocky structure; firm; few fine tubular pores; few discontinuous distinct dark brown (7.5YR 3/2) organo-clay films on faces of peds; 10 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

3C—63 to 70 inches; yellowish brown (10YR 5/4) fine sandy loam; massive, but fairly well defined horizontal and vertical fracture planes, which define plates 2 to 5 inches horizontally and 0.5 to 1 inch vertically; friable; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 70 inches
Depth to carbonates: 40 to 70 inches

Ap or A horizon:
Hue—10YR
Value—3
Chroma—2 or 3
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR
Value—4
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—strongly acid to slightly acid

2Bt horizon:
Hue—7.5YR
Value—4
Chroma—4 to 6
Texture—loam, clay loam, or sandy clay loam
Reaction—strongly acid to slightly acid
Content of rock fragments—1 to 14 percent

3Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam or sandy clay loam
Reaction—neutral or slightly alkaline
Content of rock fragments—2 to 12 percent

3BCt and 3C horizons:
Hue—10YR
Value—5
Chroma—3 or 4
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—3 to 12 percent

Loudonville Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon for MLRA 111

Loudonville silt loam, in a cultivated field, 1,000 feet north and 150 feet west of the southeast corner of sec. 8, T. 22 N., R. 6 W., Warren County, Indiana; about 4 miles west and 1 mile north of Westpoint; USGS Westpoint topographic quadrangle; lat. 40 degrees 21 minutes 42.29 seconds north and long. 87 degrees 6 minutes 42.7 seconds west; 490,502 easting and 4,467,715 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; many fine roots; 9 percent rock fragments; moderately acid; abrupt smooth boundary.

Bt1—8 to 15 inches; yellowish brown (10YR 5/4) clay loam; weak fine subangular blocky structure; firm; common very fine roots; common discontinuous distinct brown (10YR 5/3) clay films on faces of peds; 5 percent rock fragments; very strongly acid; clear wavy boundary.

Bt2—15 to 24 inches; yellowish brown (10YR 5/4) clay loam; weak fine subangular blocky structure; firm; few very fine roots; common discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent brownish yellow (10YR 6/8) accumulations of iron in the matrix; 9 percent rock fragments; very strongly acid; clear wavy boundary.

Bt3—24 to 31 inches; yellowish brown (10YR 5/6) gravelly clay loam; weak medium subangular blocky structure parting to weak fine subangular blocky; firm; few fine roots; common discontinuous distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; many fine distinct strong brown (7.5YR 5/8) accumulations of iron in the matrix; many black (N 2.5/0) iron and manganese accumulations throughout; 21 percent rock fragments; very strongly acid; abrupt smooth boundary.

2C—31 to 36 inches; yellowish brown (10YR 5/4) channery silty clay loam; many medium distinct light gray (2.5Y 7/2) and prominent yellowish brown (10YR 5/8) relict colors; massive; firm; 27 percent rock fragments; very strongly acid; clear wavy boundary.

2R—36 inches; thinly bedded, strongly cemented siltstone; very strongly acid.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 20 to 40 inches

Depth to bedrock: 20 to 40 inches

Reaction: Very strongly acid to moderately acid throughout the profile

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Content of rock fragments—0 to 10 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, silt loam, clay loam, silty clay loam, or the gravelly or channery analogs of those textures
Content of rock fragments—2 to 25 percent

2C horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—clay loam, silty clay loam, or the channery or very channery analogs of those textures
Content of rock fragments—10 to 59 percent

2R horizon:
Kind of bedrock—strongly cemented siltstone

Mahalaland Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for the Series

Mahalaland silty clay loam, in a cultivated field, 150 feet east and 550 feet south of the center of sec. 13, T. 19 N., R. 8 W., Tippecanoe County, Indiana; about 1 mile south of Lafayette; USGS Stockwell Quadrangle; lat. 40 degrees 21 minutes 7.03 seconds north and long. 86 degrees 49 minutes 0.04 second west; 515,568 easting and 4,466,638 northing UTM zone 16, NAD 27

Ap—0 to 9 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium subangular blocky structure; firm; common medium roots; slightly acid; abrupt smooth boundary.

A—9 to 13 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; weak coarse subangular blocky structure parting to moderate medium subangular blocky; firm; common medium roots; common fine and medium pores; neutral; clear smooth boundary.

Btg1—13 to 18 inches; dark gray (5Y 4/1) silty clay loam; moderate fine subangular blocky structure; firm; common fine roots; common fine pores; many continuous distinct very dark gray (5Y 3/1) organo-clay films and continuous black (10YR 2/1) organic coatings on faces of peds; common fine distinct olive (5Y 4/4) accumulations of iron in the matrix; neutral; clear smooth boundary.

Btg2—18 to 26 inches; dark gray (10YR 4/1) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine pores; many continuous prominent dark gray (10YR 4/1) clay films on faces of peds; common fine prominent olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; clear smooth boundary.

Btg3—26 to 33 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to weak coarse subangular blocky; firm; few fine roots; common fine pores; common discontinuous distinct dark gray (10YR 4/1) clay films on faces of peds; common fine prominent light olive brown (2.5Y 5/4) accumulations of iron in the matrix; neutral; clear smooth boundary.

2Btg4—33 to 40 inches; grayish brown (2.5Y 5/2) clay loam; weak coarse subangular blocky structure; firm; few fine roots; common fine pores; common discontinuous distinct dark gray (10YR 4/1) clay films on faces of peds; very dark gray (5Y 3/1) krotovinas; common medium prominent light olive brown (2.5Y 5/6) accumulations of iron in the matrix; slightly effervescent; moderately alkaline; clear smooth boundary.

2Btg5—40 to 46 inches; olive gray (5Y 4/2) sandy clay loam; weak coarse subangular blocky structure; firm; few fine roots; few fine pores; common discontinuous distinct dark gray (5Y 4/1) clay films on faces of peds; 6 percent gravel; slightly effervescent; moderately alkaline; clear smooth boundary.

3Cg1—46 to 53 inches; dark grayish brown (2.5Y 4/2), stratified gravelly loamy sand and sandy loam; single grain; loose; 21 percent gravel; strongly effervescent; moderately alkaline; clear smooth boundary.

3Cg2—53 to 80 inches; dark grayish brown (10YR 4/2) gravelly sand; single grain; loose; 33 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: More than 40 inches
Thickness of the loess: 20 to 40 inches
Thickness of the mollic epipedon: 10 to 21 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Reaction—slightly acid or neutral

Btg horizon:
Hue—10YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 2
Reaction—slightly acid or neutral

2Btg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, silt loam, clay loam, or sandy clay loam
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 10 percent

3Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 3
Texture—stratified gravelly loamy sand, gravelly coarse sand, or gravelly sand with thin strata of sandy loam in the upper part
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 50 percent

Mahalasville Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for MLRA 111

Mahalasville silty clay loam, in a cultivated field, 2,367 feet east and 396 feet north of the southwest corner of sec. 9, T. 19 N., R. 4 W., Montgomery County, Indiana; about 4 miles north of Crawfordsville; USGS Crawfordsville topographic quadrangle; 510,548 easting and 4,438,495 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark gray (10YR 3/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine granular structure; firm; many fine roots; slightly acid; abrupt smooth boundary.

A—10 to 15 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; moderate fine subangular blocky structure; firm; few medium prominent olive brown (2.5Y 4/4) accumulations of iron in the matrix; few clean sand grains on faces of peds; slightly acid; clear smooth boundary.

Btg1—15 to 22 inches; gray (10YR 5/1) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; common fine roots; many fine pores; common discontinuous distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few distinct very dark gray

(10YR 3/1) organic coatings on surfaces along pores; many medium prominent olive brown (2.5Y 4/4) accumulations of iron in the matrix; common clean fine sand grains; neutral; gradual wavy boundary.

Btg2—22 to 33 inches; grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; common fine roots; many fine pores; common continuous distinct dark gray (10YR 4/1) clay films on faces of peds; few distinct dark gray (10YR 4/1) organic coatings on surfaces along pores; many medium distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; clear wavy boundary.

Btg3—33 to 40 inches; light brownish gray (10YR 6/2) silt loam; moderate medium subangular blocky structure; firm; few distinct dark gray (10YR 4/1) clay films on faces of peds; few black (10YR 2/1) manganese and iron stains on faces of peds; common medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; many sand grains; neutral; abrupt smooth boundary.

2Btg4—40 to 52 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; firm; few discontinuous distinct dark gray (10YR 4/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; 3 percent fine gravel; neutral; clear smooth boundary.

2Cg—52 to 60 inches; gray (10YR 5/1) sandy loam with a few thin strata of silt loam and gravelly sand; massive; friable; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 40 to 60 inches
Thickness of the loess: 24 to 40 inches
Thickness of the mollic epipedon: 10 to 21 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Reaction—slightly acid or neutral

Btg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam
Reaction—slightly acid or neutral

2Btg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent

2BCg horizon (where present):
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—loam, sandy loam, or silt loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 5 percent

2Cg horizon:
Hue—10YR to 5Y or neutral
Value—4 to 6
Chroma—0 to 2
Texture—stratified sand, sandy loam, silt loam, or loam; also, thin strata of the gravelly analogs of those textures
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—averages 0 to 10 percent

Bedrock Substratum Phase

Depth to bedrock: 40 to 60 inches

3C horizon:
Texture—loamy coarse sand

3R horizon:
Kind of bedrock—shale

Martinsville Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Martinsville loam, on a slope of 1 percent, in a cultivated field, 1,050 feet north and 2,000 feet west of the southeast corner of sec. 22, T. 16 N., R. 2 E., Hendricks County, Indiana; USGS Danville topographic quadrangle; lat. 39 degrees 48 minutes 26 seconds north and long. 86 degrees 37 minutes 16 seconds west; 532,432 easting and 4,406,230 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; few fine roots; neutral; abrupt smooth boundary.

BE—8 to 13 inches; brown (10YR 4/3) loam; moderate medium granular structure; friable; few fine roots; neutral; clear wavy boundary.

Bt1—13 to 17 inches; dark yellowish brown (10YR 4/4) clay loam; moderate fine subangular blocky structure; firm; few fine roots; common discontinuous distinct dark brown (10YR 3/3) clay films on faces of peds; slightly acid; clear wavy boundary.

Bt2—17 to 35 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many continuous distinct dark brown (10YR 3/3) clay films on faces of peds; strongly acid; gradual wavy boundary.

Bt3—35 to 43 inches; dark yellowish brown (10YR 4/4) sandy clay loam; moderate coarse subangular blocky structure; friable; common discontinuous distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; moderately acid; clear wavy boundary.

BC—43 to 53 inches; dark yellowish brown (10YR 3/4) sandy loam; weak coarse subangular blocky structure; very friable; slightly acid; clear wavy boundary.

C—53 to 60 inches; brown (10YR 5/3), pale brown (10YR 6/3), and dark yellowish brown (10YR 3/4), stratified sandy loam, loam, and silt loam with thin strata of sand; massive; very friable; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 70 inches

Content of rock fragments: 0 to 10 percent throughout the profile (mainly fine gravel with crystalline, limestone, or igneous lithology)

A or Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 6
Texture—loam, silt loam, fine sandy loam, or sandy loam
Reaction—strongly acid to neutral

Bt and BC horizons:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 to 6
Texture—clay loam, loam, silt loam, silty clay loam, fine sandy loam, sandy loam, or sandy clay loam
Reaction—strongly acid to slightly alkaline

C horizon:
Hue—10YR
Value—3 to 6
Chroma—3 to 6
Texture—stratified fine sandy loam, sandy loam, loam, or silt loam with thin strata of sand
Reaction—slightly alkaline or moderately alkaline

Mellott Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Hapludalfs

Typical Pedon for the Series

Mellott silt loam, in a cultivated field, 740 feet east and 425 feet north of the southwest corner of sec. 7, T. 22 N., R. 4 W., Tippecanoe County, Indiana; about 2 miles south of Lafayette; USGS Romney topographic quadrangle; 508,394 easting and 4,465,978 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate medium granular structure; friable; very strongly acid; abrupt smooth boundary.

Bt1—9 to 13 inches; brown (10YR 4/3) silt loam; moderate fine subangular blocky structure; friable; common very fine vesicular pores; common continuous distinct dark brown (10YR 3/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—13 to 28 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine vesicular pores; common continuous distinct brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt3—28 to 33 inches; brown (7.5YR 4/4) loam; moderate medium subangular blocky structure; firm; common very fine vesicular pores; common continuous distinct brown (7.5YR 4/4) clay films on faces of peds; 5 percent gravel; strongly acid; clear smooth boundary.

2Bt4—33 to 42 inches; dark brown (7.5YR 3/3) sandy clay loam with pockets of sandy loam; weak coarse subangular blocky structure; firm; common very fine tubular pores; common continuous distinct dark brown (7.5YR 3/2) clay films on faces of peds; 10 percent gravel; strongly acid; clear wavy boundary.

3Bt5—42 to 47 inches; yellowish brown (10YR 5/4) fine sandy loam; weak coarse subangular blocky structure; firm; common very fine tubular pores; common discontinuous distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; 5 percent gravel; slightly acid; clear smooth boundary.

3BCt—47 to 50 inches; yellowish brown (10YR 5/4) fine sandy loam; weak coarse subangular blocky structure; friable; common discontinuous distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; 3 percent gravel; slightly effervescent; slightly alkaline; clear smooth boundary.

4C—50 to 60 inches; yellowish brown (10YR 5/4) loam; massive, but well defined horizontal and fairly well defined vertical fracture planes, which define plates 2 to 5 inches horizontally and 0.5 inch to 1.5 inches vertically; friable; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches
Thickness of the loess: 22 to 40 inches
Depth to carbonates: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Reaction—very strongly acid to neutral

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid to moderately acid

2Bt horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—loam or sandy clay loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—3 to 10 percent

3Bt and 3BCt horizons:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—loam or fine sandy loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—3 to 10 percent

4C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—3 to 10 percent

Miami Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Miami silt loam, on a convex slope of 3 percent, in a cultivated field, 800 feet west and 300 feet south of the northeast corner of sec. 6, T. 15 N., R. 1 E., Hendricks County, Indiana; about 2 miles northeast of Danville; USGS Brownsburg topographic quadrangle; 546,217 easting and 4,402,762 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; neutral; abrupt smooth boundary.

Bt1—8 to 13 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; many continuous distinct brown (7.5YR 4/4) clay films on faces of peds and on surfaces along pores; 1 percent gravel; moderately acid; abrupt wavy boundary.

2Bt2—13 to 23 inches; dark yellowish brown (10YR 4/4) clay loam; strong coarse subangular blocky structure; firm; many continuous distinct brown (7.5YR 4/4) clay films on faces of peds and on surfaces along pores; 2 percent gravel; strongly acid; clear wavy boundary.

2Bt3—23 to 31 inches; dark yellowish brown (10YR 4/4) clay loam; moderate coarse subangular blocky structure; firm; many discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds and on surfaces along pores; common fine and medium rounded very dark gray (10YR 3/1) masses of iron and manganese in the matrix; 5 percent gravel; moderately acid; clear wavy boundary.

2BCt—31 to 36 inches; brown (10YR 4/3) loam; weak coarse prismatic structure; friable; common discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium distinct very dark gray (10YR 3/1) masses of iron and manganese in the matrix; common medium faint light brownish gray (10YR 6/2) irregularly shaped iron depletions in the matrix; 5 percent gravel; slightly effervescent; slightly alkaline; clear irregular boundary.

2Cd—36 to 80 inches; brown (10YR 5/3) loam; massive; very firm; few fine irregular very dark gray (10YR 3/1) masses of iron and manganese in the matrix; common medium faint grayish brown (10YR 5/2) irregularly shaped iron depletions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 24 to 40 inches
Thickness of the loess: 0 to 18 inches
Depth to carbonates: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture—silt loam, loam, fine sandy loam, silty clay loam, or clay loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 5 percent

Bt and 2Bt horizons:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam or clay loam
Reaction—strongly acid to neutral
Content of rock fragments—1 to 10 percent

2BCt or BCt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Reaction—neutral or slightly alkaline
Content of rock fragments—1 to 10 percent

2Cd or Cd horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 10 percent

Minnehaha Series

Taxonomic classification: Fine-loamy, mixed, active, nonacid, mesic Alfic Udarents

Typical Pedon for MLRA 111

Minnehaha silty clay loam, in a forest, 1,250 feet south and 75 feet east of the northwest corner of sec. 12, T. 10 N., R. 6 W., Owen County, Indiana; about 5 miles northeast of Clay City, Indiana; USGS Clay City topographic quadrangle; 497,084 easting and 4,352,815 northing UTM zone 16, NAD 27:

A1—0 to 1 inch; dark grayish brown (10YR 4/2) silty clay loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine and medium roots; many fine and medium interstitial and tubular pores; 30 percent pararock fragments (shale); 2 percent indurated sandstone channers; neutral; clear smooth boundary.

A2—1 to 3 inches; dark gray (10YR 4/1) silty clay loam; weak fine subangular blocky structure; firm; many fine and medium roots; common fine and medium interstitial and tubular pores; common fine prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; 30 percent pararock fragments (shale); 5 percent indurated sandstone channers; neutral; gradual irregular boundary.

C1—3 to 15 inches; mixed 45 percent irregularly shaped clods of yellowish brown (10YR 5/6) clay loam and 45 percent dark gray (10YR 4/1) pararock fragments (shale); massive; firm; common fine and medium roots; common fine and medium interstitial and tubular pores; few discontinuous faint yellowish brown (10YR 5/6) clay films on faces of clods; 10 percent sandstone channers; neutral; gradual irregular boundary.

C2—15 to 60 inches; mixed 50 percent dark gray (10YR 4/1) pararock fragments (shale), 30 percent irregularly shaped clods of yellowish brown (10YR 5/6) clay loam, and 10 percent clods of dark gray (10YR 4/1) silty clay loam; massive; firm; common medium roots; few fine interstitial and tubular pores; few discontinuous faint yellowish brown (10YR 5/6) clay films on faces of clods; 10 percent indurated sandstone flagstones; neutral.

Range in Characteristics for MLRA 111

The individual layers within the soils vary in thickness and composition. Soil clods of relict horizons from premined soils are randomly distributed in most pedons and have identifiable properties, such as redox depletions and clay films, that are characteristic of the premined soils.

A horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 6
Texture—silt loam or silty clay loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent very strongly cemented or indurated sandstone, siltstone, or shale fragments (mainly channers) and 20 to 50 percent soft shale fragments

C horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 8

Texture—mixed silty clay loam, silt loam, clay loam, loam, or the channery analogs of those textures
Reaction—moderately acid to neutral
Content of rock fragments—2 to 15 percent very strongly cemented or indurated sandstone, siltstone, or shale fragments and 35 to 80 percent soft shale fragments

Mitiwanga Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Pedon for MLRA 111

Mitiwanga silt loam (fig. 16), on a slope of 1 percent, in an area of forestland, 1,400 feet east and 450 feet south of the northwest corner sec. 24, T. 20 N., R. 9 W., Fountain County, Indiana; about 1 1/2 miles north of Covington; USGS Covington topographic quadrangle; lat. 40 degrees 10 minutes 11.2 seconds north and long. 87 degrees 23 minutes 25 seconds west; 466,769 easting and 4,446,474 northing UTM zone 16, NAD 27:

Oi—0 to 1 inch; partially decomposed leaves and twigs.

A—1 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many fine and medium roots throughout; 2 percent rock fragments; strongly acid; abrupt smooth boundary.

E—6 to 11 inches; dark grayish brown (10YR 4/2) silt loam; weak fine subangular blocky structure parting to moderate medium granular; friable; common fine and medium roots throughout; common medium rounded black (10YR 2/1) masses of iron and manganese throughout; 2 percent rock fragments; strongly acid; clear smooth boundary.

Bt1—11 to 20 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; firm; common fine and medium roots throughout; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 2 percent rock fragments; strongly acid; clear smooth boundary.

Bt2—20 to 28 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; common fine and medium roots throughout; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; 4 percent rock fragments; strongly acid; clear smooth boundary.

Figure 16.—Profile of Mitiwanga silt loam, 0 to 2 percent slopes.

2C—28 to 33 inches; strong brown (7.5YR 5/6) channery sandy clay loam; platy rock structure; very firm; strongly cemented; common patchy distinct light brownish gray (10YR 6/2) clay films on rock fragments; many medium rounded black (10YR 2/1) masses of iron and manganese around stones; 34 percent rock fragments; strongly acid; abrupt wavy boundary.

2R—33 inches; strongly cemented sandstone bedrock.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 20 to 40 inches
Depth to bedrock: 20 to 40 inches

A or Ap horizon:
Hue—10YR or 2.5Y
Value—2 to 5
Chroma—2 or 3
Texture—silt loam or channery loam
Reaction—very strongly acid to slightly acid
Content of rock fragments—2 to 25 percent

E horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam, silt loam, or channery loam
Reaction—very strongly acid to slightly acid
Content of rock fragments—2 to 25 percent

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silt loam, silty clay loam, clay loam, loam, or the channery analogs of those textures
Reaction—very strongly acid to moderately acid
Content of rock fragments—2 to 30 percent

2C horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—the channery or very channery analogs of clay loam, loam, sandy clay loam, or sandy loam
Reaction—very strongly acid to slightly acid
Content of rock fragments—15 to 40 percent

2R horizon:
Kind of bedrock—strongly cemented sandstone

Ockley Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Ockley silt loam, in a cultivated field, 195 feet north and 1,850 feet east of the southwest corner of sec. 18, T. 15 N., R. 11 W., Rush County, Indiana; about 1 mile east of Raleigh; USGS Falmouth topographic quadrangle; 641,760 easting and 4,400,500 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many fine and very fine roots; 2 percent rock fragments; slightly acid; abrupt smooth boundary.

BA—10 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; 2 percent rock fragments; slightly acid; clear wavy boundary.

Bt1—15 to 18 inches; brown (7.5YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; common discontinuous faint brown (7.5YR 4/4) clay films on faces of peds; 6 percent rock fragments; slightly acid; clear wavy boundary.

2Bt2—18 to 30 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine and very fine roots; many continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 6 percent rock fragments; moderately acid; clear wavy boundary.

2Bt3—30 to 37 inches; brown (7.5YR 4/4) sandy clay loam; moderate medium subangular blocky structure; friable; common discontinuous prominent dark reddish brown (5YR 3/3) clay films on faces of peds; 10 percent rock fragments; strongly acid; clear wavy boundary.

2Bt4—37 to 49 inches; dark reddish brown (5YR 3/3) gravelly sandy clay loam; weak medium subangular blocky structure; friable; common continuous distinct dark reddish brown (5YR 3/3) clay bridges between sand grains; 26 percent rock fragments; neutral; abrupt irregular boundary.

3C—49 to 60 inches; yellowish brown (10YR 5/4), stratified coarse sand and very gravelly coarse sand; single grain; loose; 50 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 72 inches
Depth to calcareous, stratified sand and very gravelly sand: 40 to 72 inches
Thickness of the loess: 0 to 20 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent

BA horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or silty clay loam

Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent

Bt horizon (where present):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam, loam, or silty clay loam
Reaction—very strongly acid to slightly acid
Content of rock fragments—0 to 10 percent

Upper part of the 2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—loam, clay loam, or sandy clay loam
Reaction—very strongly acid to slightly acid
Content of rock fragments—0 to 10 percent

Lower part of the 2Bt horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—2 to 6
Texture—sandy clay loam, sandy loam, clay loam, coarse sandy loam, or the gravelly or very gravelly analogs of those textures
Reaction—strongly acid to neutral
Content of rock fragments—10 to 45 percent

3C horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—stratified gravelly or very gravelly loamy coarse sand or gravelly or very gravelly coarse sand with strata of loamy sand, coarse sand, or sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—30 to 70 percent

Octagon Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for MLRA 111

Octagon silt loam, in a cultivated field, 1,770 feet west and 410 feet north of the southeast corner of sec. 14, T. 22 N., R. 4 W., Tippecanoe County, Indiana; about 1 1/4 miles northwest of Crane; USGS Stockwell topographic quadrangle; 514,037 easting and 4,466,011 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; common fine distinct pockets of dark yellowish brown (10YR 4/4) silty clay loam from the subsoil; moderate medium granular structure; friable; neutral; abrupt smooth boundary.

Bt1—8 to 12 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to moderate very fine and fine subangular blocky; firm; common continuous distinct very dark brown (10YR 3/2) organo-clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt2—12 to 21 inches; dark yellowish brown (10YR 4/4) sandy clay loam; weak medium prismatic structure parting to moderate medium subangular blocky, firm; common fine pores; common discontinuous distinct dark brown (10YR 3/3) clay films on faces of peds; 5 percent gravel; moderately acid; gradual smooth boundary.

2Bt3—21 to 29 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; common fine pores; common discontinuous distinct dark brown (10YR 3/3) and brown (10YR 4/3) clay films on faces of peds; few medium black (N 2.5/0) iron and manganese stains on faces of peds; 5 percent gravel; moderately acid; clear smooth boundary.

2Bt4—29 to 37 inches; yellowish brown (10YR 5/4) sandy clay loam; weak coarse subangular blocky structure; firm; common fine pores; few discontinuous distinct dark brown (10YR 3/3) clay films on faces of peds; common medium black (N 2.5/0) iron and manganese stains on faces of peds; 8 percent gravel; moderately acid; clear wavy boundary.

2Cd—37 to 60 inches; brown (10YR 5/3) fine sandy loam; massive and weak medium and thick platy fragments; very firm; 10 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 24 to 40 inches
Thickness of the loess: 0 to 18 inches

Ap horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam, loam, or fine sandy loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 4 percent

Bt and 2Bt horizons:
Hue—7.5YR or 10YR
Value—4 or 5

Chroma—3 to 6
Texture—clay loam, sandy clay loam, loam, or silty clay loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent

Cd or 2Cd horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—3 or 4
Texture—loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 10 percent

Pella Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon for MLRA 111

Pella silty clay loam, in a cultivated field, 1,810 feet east and 360 feet south of the northwest corner of sec. 13, T. 22 N., R. 4 W., Tippecanoe County, Indiana; about 1¹/₄ miles northwest of North Crane; USGS Stockwell topographic quadrangle; 515,116 easting and 4,467,400 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium granular structure; firm; neutral; abrupt smooth boundary.

A—10 to 15 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; weak medium prismatic structure parting to weak medium subangular blocky; firm; common fine roots; common fine prominent dark gray (5Y 4/1) iron depletions in the matrix; neutral; clear smooth boundary.

Bg1—15 to 23 inches; olive gray (5Y 5/2) silty clay loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; common fine pores; common discontinuous distinct very dark gray (N 3/0) and black (10YR 2/1) organic coatings on faces of peds; a krotovina, 2 inches in diameter, filled with black (10YR 2/1) silty clay loam; common medium prominent light olive brown (2.5Y 5/6) accumulations of iron in the matrix; neutral; clear smooth boundary.

Bg2—23 to 31 inches; olive gray (5Y 5/2) silt loam; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; common fine pores; common discontinuous distinct very dark gray (10YR 3/1) organic coatings on faces of peds; a krotovina, 2 inches in diameter, filled with black (10YR 2/1) silty clay loam; common medium prominent light olive brown (2.5Y 5/6) accumulations of iron in the matrix; slightly effervescent; slightly alkaline; clear smooth boundary.

Cg1—31 to 35 inches; grayish brown (2.5Y 5/2) silt loam; massive; firm; few fine pores; common continuous distinct dark gray (10YR 4/1) organic coatings on surfaces along pores; a krotovina, 2 inches in diameter, filled with black (10YR 2/1) silty clay loam; many coarse distinct light olive brown (2.5Y 5/4) accumulations of iron in the matrix; strongly effervescent; moderately alkaline; clear smooth boundary.

Cg2—35 to 46 inches; grayish brown (2.5Y 5/2) silt loam; massive; firm; few fine pores; common continuous distinct very dark gray (10YR 3/1) organic coatings on surfaces along pores; a krotovina, 2 inches in diameter, filled with black (10YR 2/1) silty clay loam; many coarse distinct light olive brown (2.5Y 5/4) accumulations of iron in the matrix; strongly effervescent; moderately alkaline; clear smooth boundary.

2Cg3—46 to 60 inches; grayish brown (2.5Y 5/2) silt loam that has one 4-inch layer of gravelly sandy loam; massive; friable; common medium distinct light olive brown (2.5Y 5/4) accumulations of iron in the matrix; 25 percent sand; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 30 to 50 inches
Thickness of the mollic epipedon: 10 to 24 inches
Depth to carbonates: 16 to 40 inches

Ap and A horizons:
Hue—10YR or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—silty clay loam or silt loam
Reaction—slightly acid to slightly alkaline

Bg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam, clay loam, silt loam, or silty clay
Reaction—neutral or slightly alkaline

Cg and 2Cg horizons:
Hue—10YR to 5Y
Value—5 or 6
Chroma—1 to 8
Texture—silt loam, loam, silty clay loam, clay

loam, or sandy loam; may be stratified with these textures
Reaction—slightly alkaline or moderately alkaline

Pinevillage Series

Taxonomic classification: Loamy-skeletal, mixed, superactive, calcareous, mesic Typic Udifluvents

Typical Pedon for the Series

Pinevillage gravelly sandy loam, in a wooded area, 1,600 feet west and 910 feet north of the southeast corner of sec. 24, T. 23 N., R. 6 W., Tippecanoe County, Indiana; about 4 miles south of Montmorenci; USGS Otterbein topographic quadrangle; 496,073 easting and 4,474,030 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; dark brown (10YR 3/3) gravelly sandy loam, pale brown (10YR 6/3) dry; weak medium granular structure; friable; common fine roots; 20 percent gravel; slightly effervescent; moderately alkaline; abrupt smooth boundary.
C1—8 to 24 inches; brown (10YR 4/3) gravelly sandy loam; weak fine subangular blocky structure; friable; common very fine roots; 20 percent gravel, 10 percent cobbles, and 2 percent stones; slightly effervescent; moderately alkaline; clear smooth boundary.
C2—24 to 45 inches; brown (10YR 4/3) very gravelly sandy loam; weak fine subangular blocky structure; friable; common very fine roots; 30 percent gravel, 10 percent cobbles, and 5 percent stones; slightly effervescent; moderately alkaline; clear smooth boundary.
C3—45 to 55 inches; brown (10YR 4/3) gravelly loam; weak fine subangular blocky structure; friable; common very fine roots; 15 percent gravel; slightly effervescent; moderately alkaline; clear wavy boundary.
C4—55 to 60 inches; dark yellowish brown (10YR 4/4) gravelly loamy coarse sand; single grain; loose; 20 percent gravel, 8 percent cobbles, and 3 percent stones; slightly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Carbonates: Calcareous in all horizons
Reaction: Slightly alkaline or moderately alkaline throughout the profile

Ap horizon:
Hue—10YR
Value—3
Chroma—3 or 4
Texture—gravelly sandy loam or gravelly silt loam
Content of rock fragments—15 to 30 percent

C horizon:
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—gravelly loam, gravelly sandy loam, gravelly loamy coarse sand, very gravelly sandy loam, or extremely gravelly sandy loam
Content of rock fragments—15 to 65 percent

Princeton Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Princeton fine sandy loam, in an alfalfa field, 2,380 feet west and 360 feet south of the northeast corner of sec. 5, T. 10 N., R. 9 W., Vigo County, Indiana; 1 1/2 miles south and 2 1/2 miles east of Prairieton; USGS Pimento topographic quadrangle; lat. 39 degrees 20 minutes 45 seconds north and long. 87 degrees 26 minutes 0 seconds west; 462,660 easting and 4,355,045 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; brown (10YR 4/3) fine sandy loam, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; many medium roots; neutral; abrupt smooth boundary.
Bt1—8 to 11 inches; strong brown (7.5YR 5/6) loam; weak thick platy structure parting to weak fine and very fine subangular blocky; friable; common medium roots; few discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common continuous distinct very pale brown (10YR 7/3) silt coatings on faces of peds; slightly acid; clear wavy boundary.
Bt2—11 to 26 inches; brown (7.5YR 4/4) sandy clay loam; moderate medium subangular blocky structure; firm; common medium and fine roots; many continuous distinct reddish brown (5YR 4/4) clay films on faces of peds; strongly acid; gradual wavy boundary.
Bt3—26 to 41 inches; yellowish red (5YR 5/6) fine sandy loam; weak coarse subangular blocky structure; friable; few fine roots; common discontinuous distinct reddish brown (5YR 4/4) clay films on faces of peds; moderately acid; gradual wavy boundary.
E and Bt—41 to 60 inches; brown (7.5YR 4/4) loamy fine sand (E); weak coarse subangular blocky structure; very friable; common wavy

discontinuous lamellae of strong brown (7.5YR 5/6) fine sandy loam (Bt); strongly acid; gradual wavy boundary.

CB—60 to 80 inches; strong brown (7.5YR 5/6) and brown (7.5YR 4/4), stratified loamy fine sand and fine sand; single grain; loose; strongly acid.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to more than 80 inches

A or Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—fine sandy loam, sandy loam, or loam
Reaction—strongly acid to neutral

Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy clay loam, fine sandy loam, or loam with thin layers of sandy loam or loamy fine sand
Reaction—very strongly acid to slightly acid

E and Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—sand, fine sand, loamy fine sand, or loamy sand with lamellae and/or bands of fine sandy loam, sandy loam, or loam
Reaction—very strongly acid to neutral

CB horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—stratified fine sand, loamy fine sand, fine sandy loam, or loamy sand
Reaction—strongly acid to moderately alkaline

Ragsdale Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for MLRA 111

Ragsdale silty clay loam, in a cultivated field, 1,060 feet east and 500 feet north of the southwest corner of sec. 4, T. 17 N., R. 5 W., Montgomery County, Indiana; about 4 miles west of New Market; USGS New Market topographic quadrangle; 500,595 easting and 4,421,155 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark grayish brown (10YR 3/2) silty clay loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; many fine roots; neutral; clear smooth boundary.

A—10 to 13 inches; very dark gray (10YR 3/1) silty clay loam, very dark grayish brown (10YR 3/2) dry; weak coarse subangular blocky structure; firm; few fine roots; few fine tubular pores; few fine prominent olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; gradual smooth boundary.

Btg1—13 to 23 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine tubular pores; common discontinuous distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; gradual smooth boundary.

Btg2—23 to 27 inches; gray (10YR 5/1) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine tubular pores; common discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; neutral; gradual smooth boundary.

Btg3—27 to 37 inches; gray (10YR 5/1) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine tubular pores; common discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; neutral; gradual smooth boundary.

Btg4—37 to 50 inches; light brownish gray (10YR 6/2) silt loam; weak fine subangular blocky structure; friable; common fine roots; common fine tubular pores; common discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; neutral; clear smooth boundary.

Cg—50 to 60 inches; yellowish brown (10YR 5/6) silt loam; massive; friable; many coarse prominent light brownish gray (10YR 6/2) iron depletions in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 40 to 60 inches
Thickness of the loess: More than 60 inches

Thickness of the mollic epipedon: 10 to 20 inches
Depth to carbonates: More than 40 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or silt loam
Reaction—slightly acid or neutral

Btg horizon:
Hue—10YR to 5Y
Value—3 to 6
Chroma—1 to 6
Texture—silt loam or silty clay loam
Reaction—slightly acid or neutral

Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Reaction—slightly alkaline or moderately alkaline

Rainsville Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Rainsville silt loam, in a cultivated field, 400 feet west and 1,280 feet south of the northeast corner of sec. 6, T. 21 N., R. 8 W., Warren County, Indiana; about 2 miles north and 1 1/2 miles east of West Lebanon; USGS Williamsport topographic quadrangle; 469,563 easting and 4,460,706 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate fine subangular blocky structure parting to moderate fine granular; friable; common fine and very fine roots; mixing of dark yellowish brown (10YR 4/4) silt loam from the subsoil; neutral; abrupt smooth boundary.

Bt1—8 to 13 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; common fine and very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds; common dark grayish brown (10YR 4/2) wormcasts on surfaces along pores; slightly acid; clear wavy boundary.

2Bt2—13 to 21 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; friable; few fine and very fine roots; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few dark grayish brown (10YR 4/2) wormcasts on surfaces along pores; 5 percent gravel; very strongly acid; clear wavy boundary.

2Bt3—21 to 30 inches; brown (7.5YR 4/4) loam; moderate medium subangular blocky structure; friable; few very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds and on surfaces along pores; few fine prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; 5 percent gravel; very strongly acid; gradual wavy boundary.

2Bt4—30 to 42 inches; strong brown (7.5YR 4/6) loam; moderate medium subangular blocky structure; friable; few very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds and on surfaces along pores; common medium faint yellowish brown (10YR 5/6) accumulations of iron in the matrix; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 8 percent gravel; strongly acid; abrupt irregular boundary.

3Bt5—42 to 48 inches; olive brown (2.5Y 4/4) loam; moderate coarse subangular blocky structure; firm; common continuous distinct dark brown (10YR 3/3) clay films on faces of peds and on surfaces along pores; few fine distinct brownish yellow (10YR 6/6) accumulations of iron in the matrix; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 4 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

3Cd—48 to 60 inches; light olive brown (2.5Y 5/4) loam; massive; firm; common fine faint light yellowish brown (10YR 6/4) accumulations of iron in the matrix; common medium distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 45 to 60 inches
Thickness of the loess: 0 to 20 inches
Depth to the 3Bt horizon: 40 to 50 inches

Ap or A horizon:
Hue—10YR
Value—4
Chroma—2 to 4
Reaction—moderately acid to neutral

Bt horizon (where present):
Hue—10YR
Value—4 or 5
Chroma—4 to 6

Texture—silt loam or silty clay loam
Reaction—moderately acid to neutral

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—loam, clay loam, or sandy clay loam
Reaction—very strongly acid to moderately acid
Content of rock fragments—1 to 14 percent

3Bt horizon:
Hue—2.5Y
Value—4 or 5
Chroma—3 or 4
Reaction—neutral or slightly alkaline
Content of rock fragments—2 to 10 percent

3Cd horizon:
Hue—2.5Y
Value—5 or 6
Chroma—3 or 4
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 10 percent

Raub Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon for the Series

Raub silt loam, in a cultivated field, 350 feet south and 300 feet west of the northeast corner of sec. 8, T. 20 N., R. 3 W., Montgomery County, Indiana; about 2 1/2 miles east of Kirkpatrick; USGS Kirkpatrick topographic quadrangle; lat. 40 degrees 11 minutes 50.3 seconds north and long. 86 degrees 40 minutes 20.10 seconds west; 519,385 easting and 4,449,760 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; moderately acid; abrupt smooth boundary.

A—10 to 13 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; moderately acid; clear smooth boundary.

Bt1—13 to 18 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; firm; few fine roots; few fine pores; many discontinuous distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; common fine faint brown (10YR 4/3) accumulations of iron in the matrix; strongly acid; clear smooth boundary.

Bt2—18 to 32 inches; dark yellowish brown (10YR 4/6) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few fine pores; many continuous distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; few fine prominent grayish brown (10YR 5/2) iron depletions in the matrix; strongly acid; clear smooth boundary.

Bt3—32 to 37 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few fine pores; common discontinuous distinct gray (10YR 5/1) clay films on faces of peds; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid; clear smooth boundary.

2Bt4—37 to 50 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; firm; common discontinuous distinct gray (10YR 5/1) clay films on faces of peds; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 3 percent gravel; neutral; clear smooth boundary.

2Bt5—50 to 60 inches; dark yellowish brown (10YR 4/6) loam; weak medium subangular blocky structure; firm; common discontinuous distinct dark gray (10YR 4/1) clay films on faces of peds; common fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 3 percent gravel; neutral; clear smooth boundary.

2Cd—60 to 70 inches; yellowish brown (10YR 5/4) loam; massive; very firm; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 9 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 70 inches
Thickness of the loess: 22 to 40 inches
Depth to carbonates: 40 to 70 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR or 2.5Y
Value—3 to 5

Chroma—2 to 8
Reaction—strongly acid to slightly acid

2Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam (containing noticeable sand), clay loam, or loam
Reaction—slightly acid or neutral
Content of rock fragments—1 to 10 percent

2Cd horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—3 to 10 percent

Rensselaer Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for MLRA 111

Rensselaer silty clay loam, in a cultivated field, 2,375 feet east and 40 feet south of the northwest corner of sec. 30, T. 13 N., R. 5 E., Johnson County, Indiana; about 3 miles east of Whiteland; USGS Greenwood topographic quadrangle; 584,410 easting and 4,378,181 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine and medium granular structure; friable; common fine roots; neutral; abrupt smooth boundary.

A—8 to 14 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; firm; common fine roots; few medium distinct brown (10YR 4/3) accumulations of iron in the matrix; neutral; clear wavy boundary.

Btg1—14 to 25 inches; dark gray (10YR 4/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common discontinuous distinct very dark gray (10YR3/1) organo-clay films on faces of peds; few fine distinct dark brown (10YR 3/3) accumulations of iron in the matrix; neutral; clear wavy boundary.

Btg2—25 to 36 inches; olive gray (5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common discontinuous distinct gray (10YR 5/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; few very dark grayish brown (10YR 3/2) manganese oxide concretions throughout; slightly alkaline; clear wavy boundary.

2Btg3—36 to 42 inches; mottled gray (10YR 5/1) and yellowish brown (10YR 5/6) loam; weak medium and coarse subangular blocky structure; firm; common discontinuous distinct very dark gray (10YR 3/1) organo-clay films on faces of peds; 3 percent fine and coarse gravel; slightly alkaline; abrupt wavy boundary.

2Cg1—42 to 47 inches; mottled gray (10YR 5/1) and yellowish brown (10YR 5/6) sandy loam; weak coarse subangular blocky structure and massive; slightly sticky when wet; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Cg2—47 to 60 inches; gray (10YR 5/1), stratified sandy loam and sand; single grain; loose; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or clay loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent

Btg and 2Btg horizons:
Hue—10YR to 5Y
Value—4 to 6
Chroma—1 or 2
Texture—clay loam, loam, or silty clay loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

2Cg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—stratified fine sand, sand, or sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 10 percent

Rockmill Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Thapto-Histic Fluvaquents

Typical Pedon for MLRA 111

Rockmill silt loam, in a cultivated field, 130 feet west and 790 feet south of the northeast corner of sec. 1, T. 18 N., R. 6 W., Montgomery County, Indiana; 3 miles south and 1 mile east of Waynetown in Wayne Township; USGS Waynetown topographic quadrangle; 496,960 easting and 4,431,655 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; weak medium platy structure parting to moderate medium granular; friable; common medium distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; neutral; abrupt smooth boundary.

Bg—8 to 15 inches; dark grayish brown (10YR 4/2) silt loam with many thin strata of light yellowish brown (2.5Y 6/4) silt loam; moderate fine subangular blocky structure; friable; few fine roots; few fine pores; few fine distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; few discontinuous prominent olive brown (2.5Y 4/4) iron oxide stains on surfaces along root channels; neutral; gradual smooth boundary.

Cg—15 to 20 inches; olive gray (5Y 5/2) silt loam; massive; firm; few fine pores; common medium distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; few discontinuous prominent olive brown (2.5Y 4/4) iron oxide stains on surfaces along root channels; few pockets of black (10YR 2/1) sapric material; neutral; clear smooth boundary.

0a1—20 to 30 inches; black (10YR 2/1) (broken face and rubbed) muck (sapric material); 10 percent fiber when broken, 5 percent rubbed; weak coarse subangular blocky structure; friable; few pockets of olive gray (5Y 5/2) silt loam; neutral; gradual smooth boundary.

0a2—30 to 60 inches; dark reddish brown (5YR 3/2) (broken face and rubbed) muck (sapric material); 10 percent fiber when broken, 5 percent rubbed; weak coarse subangular blocky structure; friable; neutral.

Range in Characteristics for MLRA 111

Depth to the base of the mineral material over the organic material: 16 to 40 inches
Content of rock fragments: None in most pedons, but in some pedons, as much as 10 percent rock fragments, mostly fine gravel, in the mineral horizons

Ap horizon:
Hue—10YR or 2.5Y
Value—2 to 4
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—strongly acid to slightly alkaline

Bg and Cg horizons:
Hue—10YR to 5Y
Value—3 to 5
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—strongly acid to slightly alkaline

Oa horizon:
Hue—5YR to 2.5Y or neutral
Value—2, 2.5, or 3
Chroma—0 to 2
Texture—muck (sapric material of either woody or herbaceous plant material, or both)
Reaction—strongly acid to slightly alkaline

Rodman Series

Taxonomic classification: Sandy-skeletal, mixed, mesic Typic Hapludolls

Typical Pedon for MLRA 111

Rodman sandy loam, on a slope of 45 percent, 20 feet north and 200 feet east of the southwest corner of sec. 13, T. 21 N., R. 8 W., Fountain County, Indiana; about 1 mile south and 1 mile west of Attica; USGS Williamsport topographic quadrangle; lat. 40 degrees 15 minutes 28.78 seconds north and long. 87 degrees 16 minutes 48.46 seconds west; 476,179 easting and 4,456,230 northing UTM zone 16, NAD 27:

A—0 to 10 inches; black (10YR 2/1) sandy loam, very dark gray (10YR 3/1) dry; moderate fine granular structure; very friable; many fine and medium roots; 14 percent rock fragments; neutral; abrupt smooth boundary.

Bw—10 to 18 inches; brown (7.5YR 4/3) very gravelly coarse sandy loam; weak medium granular structure; very friable; common fine and medium roots; 35 percent rock fragments; slightly alkaline; abrupt smooth boundary.

C—18 to 80 inches; yellowish brown (10YR 5/4) very gravelly loamy coarse sand; single grain; loose; 50 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 10 to 18 inches
Depth to carbonates: 10 to 18 inches
Reaction: Neutral to moderately alkaline throughout the profile

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam, gravelly loam, loam, gravelly coarse sandy loam, or gravelly sandy loam
Content of rock fragments—10 to 30 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—1 to 3
Texture—loam, sandy loam, coarse sandy loam, or the gravelly or very gravelly analogs of those textures
Content of rock fragments—10 to 40 percent

C horizon:
Hue—10YR
Value—3 to 6
Chroma—1 to 4
Texture—very gravelly or extremely gravelly loamy coarse sand or very gravelly or extremely gravelly sand
Content of rock fragments—35 to 78 percent

Rossburg Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluventic Hapludolls

Typical Pedon for the Series

Rossburg silt loam, on a slope of less than 1 percent, in a cultivated field, 580 feet east and 1,815 feet south of the northwest corner of sec. 29, T. 4 N., R. 15 E., Sandusky County, Ohio; Fremont West topographic quadrangle; lat. 41 degrees 16 minutes 45 seconds north and long. 83 degrees 09 minutes 59 seconds west; 318,569 easting and 4,572,011 northing UTM zone 17, NAD 27:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak medium and fine granular structure; friable; many roots; neutral; clear smooth boundary.
A—9 to 21 inches; dark brown (10YR 3/3) silt loam, brown (10YR 4/3) dry; weak medium and fine subangular blocky structure parting to moderate medium granular; friable; many roots; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; neutral; clear smooth boundary.
Bw1—21 to 33 inches; brown (10YR 4/3) loam; weak coarse and medium subangular blocky structure; friable; common roots; few very dark grayish brown (10YR 3/2) wormcasts; neutral; clear smooth boundary.
Bw2—33 to 41 inches; dark yellowish brown (10YR 4/4) loam; weak medium and fine subangular blocky structure; friable; few roots; few thin very dark grayish brown (10YR 3/2) strata; few dark grayish brown (10YR 4/2) wormcasts; common medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; few coarse faint brown (10YR 5/3) iron depletions in the matrix; neutral; abrupt smooth boundary.
Bw3—41 to 49 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine subangular blocky structure; friable; few roots; some thin lenses of silt loam and loam; neutral; clear smooth boundary.
C—49 to 60 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; friable; some thin lenses of silt loam and loam; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 24 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches
Rock fragments: Mainly glacial erratics

A and Ap horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

Bw horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 6
Texture—silt loam, loam, fine sandy loam, or sandy loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 10 percent

C horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam, silt loam, fine sandy loam, sandy loam, or the gravelly or very gravelly analogs of those textures
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 34 percent

Rush Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for the Series

Rush silt loam, on a slope of 1 percent, in a cultivated field, 2,500 feet east and 1,848 feet south of the northwest corner of sec. 22, T. 19 N., R. 4 W., Montgomery County, Indiana; about 2 miles north and 2 miles east of Crawfordsville; USGS Darlington topographic quadrangle; 512,173 easting and 4,436,196 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

Bt1—10 to 15 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; firm; common fine roots; common fine pores; common discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—15 to 24 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common fine roots; common fine pores; common continuous distinct dark brown (10YR 3/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt3—24 to 34 inches; brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; common continuous distinct yellowish red (5YR 4/6) clay films on faces of peds; few clean sand grains; very strongly acid; clear wavy boundary.

2Bt4—34 to 46 inches; brown (7.5YR 4/4) clay loam; moderate medium and coarse subangular blocky structure; firm; few fine pores; common discontinuous distinct dark reddish brown (5YR 3/3) clay films on faces of peds; 3 percent gravel; very strongly acid; abrupt wavy boundary.

3Bt5—46 to 53 inches; dark yellowish brown (10YR 4/4) gravelly loam; weak coarse subangular blocky structure; firm; common discontinuous distinct dark reddish brown (5YR 3/2) clay films on faces of peds; 30 percent gravel; neutral; clear wavy boundary.

3BC—53 to 62 inches; dark yellowish brown (10YR 4/4) very gravelly sandy loam; massive; friable; 40 percent gravel; slightly alkaline; clear wavy boundary.

3C—62 to 70 inches; brown (10YR 5/3) very gravelly coarse sand; single grain; loose; 40 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 40 to 80 inches
Thickness of the loess: 24 to 40 inches
Depth to the 3Bt or 3C horizon: More than 40 inches

Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 or 3
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid to slightly acid

2Bt horizon:
Hue—5YR to 10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, clay loam, sandy clay loam, or the gravelly analogs of those textures
Reaction—very strongly acid to slightly acid
Content of rock fragments—0 to 20 percent

3Bt horizon:
Hue—5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—the gravelly or very gravelly analogs of loam, sandy clay loam, or sandy loam
Reaction—strongly acid to neutral
Content of rock fragments—15 to 45 percent

3BC horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—the gravelly, very gravelly, or extremely gravelly analogs of sandy loam, coarse sandy loam, or loamy coarse sand
Reaction—neutral or slightly alkaline
Content of rock fragments—15 to 75 percent

3C horizon:
Hue—10YR
Value—5 or 6
Chroma—2 to 4
Texture—the gravelly, very gravelly, or extremely gravelly analogs of loamy sand, loamy coarse sand, sand, or coarse sand

Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 75 percent

Russell Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for the Series

Russell silt loam, in a cultivated field, 2,600 feet north and 2,000 feet west of the southeast corner of sec. 1, T. 14 N., R. 4 W., Putnam County, Indiana; about 2 1/2 miles northwest of Filmore; USGS Greencastle topographic quadrangle; lat. 39 degrees 40 minutes 54.1 seconds north and long. 86 degrees 48 minutes 2.4 seconds west; 517,094 easting and 4,392,238 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak medium granular structure; friable; many fine roots; many fine pores; slightly acid; abrupt smooth boundary.

Bt1—8 to 13 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; many fine roots; many fine pores; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—13 to 28 inches; brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; many fine roots; many continuous distinct brown (7.5YR 4/4) clay films on faces of peds; very strongly acid; clear wavy boundary.

2Bt3—28 to 39 inches; dark yellowish brown (10YR 4/4) clay loam; moderate coarse subangular blocky structure; firm; common fine roots; common continuous distinct brown (7.5YR 4/4) clay films on faces of peds; 3 percent rock fragments; strongly acid; clear wavy boundary.

2Bt4—39 to 52 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; few fine pores; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; 3 percent rock fragments; strongly acid; clear wavy boundary.

2BCt—52 to 58 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; few discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; few medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; few very dark brown (7.5YR 2.5/2) very weakly cemented iron and manganese oxide nodules throughout; 4 percent rock fragments; slightly effervescent; moderately alkaline; clear wavy boundary.

2Cd—58 to 60 inches; yellowish brown (10YR 5/4) loam; massive; very firm; 4 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches
Thickness of the loess: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Reaction—strongly acid to neutral

Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid to moderately acid

2Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—clay loam, loam, or silty clay loam
Reaction—strongly acid to neutral
Content of rock fragments—1 to 10 percent

2BCt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—loam or clay loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 10 percent

2Cd horizon:
Hue—10YR or 2.5Y
Value—5
Chroma—3 to 6
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—3 to 14 percent

Shoals Series

Taxonomic classification: Fine-loamy, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon for MLRA 111

Shoals silt loam, in a pasture, 530 feet south and 100 feet east of the northwest corner of sec. 25, T. 17 N., R. 6 W., Montgomery County, Indiana; about 1 mile north of Waveland; USGS Alamo topographic quadrangle; 495,472 easting and 4,433,973 northing UTM zone 16, NAD 27:

A—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, brown (10YR 5/3) dry; weak fine granular structure; friable; few roots; slightly alkaline; clear wavy boundary.

Bg1—8 to 20 inches; dark grayish brown (2.5Y 4/2) silt loam; weak fine granular structure; friable; few roots; common fine distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; many fine faint dark gray (10YR 4/1) iron depletions in the matrix; neutral; diffuse smooth boundary.

Bg2—20 to 33 inches; dark grayish brown (2.5Y 4/2) silt loam; weak fine granular structure; friable; few roots; common fine distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; many fine faint dark gray (10YR 4/1) iron depletions in the matrix; neutral; diffuse smooth boundary.

Cg1—33 to 46 inches; grayish brown (2.5Y 5/2) silt loam with thin strata of loam; massive; friable; common medium distinct olive brown (2.5Y 4/4) accumulations of iron in the matrix; common dark reddish brown (5YR 3/3) iron and manganese accumulations throughout; common medium faint olive gray (5Y 5/2) iron depletions in the matrix; slightly effervescent; slightly alkaline; clear wavy boundary.

Cg2—46 to 60 inches; gray (10YR 5/1) loam with strata of silt loam, sandy loam, and sand; massive; friable; common medium faint dark grayish brown (2.5Y 4/2) iron depletions in the matrix; slightly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the cambic horizon: 20 to 60 inches

A or Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Reaction—neutral or slightly alkaline
Content of rock fragments—0 to 3 percent

Bg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam, silt loam, clay loam, or sandy clay loam
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 3 percent

Cg horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 6
Texture—stratified loam, silt loam, clay loam, fine sandy loam, or sandy loam with thin strata of loamy sand or sand
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 14 percent

Silverwood Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Hapludalfs

Typical Pedon for the Series

Silverwood silt loam, in a field of hay, 2,000 feet north and 2,500 feet west of the southeast corner of sec. 22, T. 18 N., R. 9 W., Fountain County, Indiana; about 2 miles north and 1 mile west of Silverwood.; USGS Newport topographic quadrangle; lat. 39 degrees 59 minutes 15.2 seconds north and long. 87 degrees 25 minutes 21.2 seconds west; 463,924 easting and 4,426,262 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, brown (10YR 5/3) dry; weak medium subangular blocky structure parting to moderate medium granular; friable; many fine and medium roots throughout; 10 percent gravel; neutral; clear smooth boundary.

BE—8 to 14 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; common fine and medium roots throughout; few discontinuous distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; few continuous distinct pale brown (10YR 6/3) clay depletions on faces of peds; 14 percent gravel; neutral; abrupt smooth boundary.

2Bt1—14 to 20 inches; brown (7.5YR 4/4) gravelly loam; moderate medium subangular blocky structure; firm; common fine roots throughout; few continuous distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 29 percent gravel; neutral; clear smooth boundary.

2Bt2—20 to 25 inches; brown (7.5YR 4/4) gravelly clay; moderate medium subangular blocky structure; firm; common continuous distinct strong brown (7.5YR 4/6) clay films on faces of peds; 34 percent gravel; neutral; clear smooth boundary.

2Bt3—25 to 40 inches; brown (7.5YR 4/4) very gravelly sandy clay loam; moderate medium subangular blocky structure; firm; common continuous distinct dark brown (7.5YR 3/4) clay films on faces of peds; 54 percent gravel; slightly acid; clear smooth boundary.

2Bt4—40 to 49 inches; brown (7.5YR 4/3) very gravelly sandy clay loam; weak medium subangular blocky structure; firm; common continuous distinct dark brown (7.5YR 3/4) clay films on faces of peds; 58 percent gravel; neutral; abrupt wavy boundary.

3C—49 to 80 inches; brown (7.5YR 5/4) very gravelly sand; single grain; loose; 51 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches

Thickness of the silty material: 0 to 20 inches

Ap horizon:

Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam, silty clay loam, clay loam, sandy loam, fine sandy loam, or loam
Reaction—slightly acid or neutral

BE horizon:

Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam or loam
Reaction—slightly acid or neutral

Bt horizon (where present):

Hue—7.5YR or 10YR
Value—3 or 4
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 14 percent

2Bt horizon:

Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—loam, clay loam, clay, sandy clay loam, or the very gravelly or gravelly analogs of those textures
Reaction—slightly acid or neutral
Content of rock fragments—0 to 59 percent

3C horizon:

Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—stratified sand, coarse sand, or the gravelly, very gravelly, or extremely gravelly analogs of those textures
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—0 to 70 percent

Sleeth Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Pedon for the Series

Sleeth loam, on a slope of 1 percent, in a cultivated field, 400 feet east and 70 feet south of the northwest corner of sec. 26, T. 10 N., R. 5 E., Bartholomew County, Indiana; along the south edge of Taylorsville; USGS Edinburgh topographic quadrangle; 590,519 easting and 4,349,067 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; few wormholes and wormcasts; neutral; abrupt smooth boundary.

E—9 to 14 inches; grayish brown (10YR 5/2) loam; moderate medium granular structure; friable; root and worm channels filled with dark grayish brown (10YR 4/2) material; neutral; clear smooth boundary.

Bt—14 to 22 inches; pale brown (10YR 6/3) clay loam; weak medium subangular blocky structure; firm; common discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; root and worm channels filled with dark grayish brown (10YR 4/2) material; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; moderately acid; clear wavy boundary.

Btg1—22 to 38 inches; light brownish gray (10YR 6/2) clay loam; moderate medium subangular blocky structure; firm; many discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) and many medium faint pale brown (10YR 6/3) accumulations of iron in the matrix; 5 percent gravel; neutral; clear smooth boundary.

Btg2—38 to 45 inches; light brownish gray (10YR 6/2) gravelly clay loam; weak coarse subangular blocky structure; firm; many discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium faint brown (10YR 5/3) and prominent yellowish red (5YR 5/6) accumulations of iron in the matrix; 20 percent gravel; neutral; clear wavy boundary.

Btg3—45 to 50 inches; grayish brown (10YR 5/2) gravelly clay loam; weak coarse subangular blocky structure; firm; few discontinuous faint grayish brown (10YR 5/2) clay films on faces of peds; few medium prominent brownish yellow (10YR 6/6) accumulations of iron in the matrix; few medium distinct gray (N 5/0) iron depletions in the matrix; 20 percent gravel; neutral; abrupt wavy boundary.

2Cg—50 to 60 inches; gray (10YR 5/1) gravelly sand; single grain; loose; 30 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 4
Texture—loam or silt loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent

E horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 4
Texture—silt loam or loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 10 percent

Bt horizon and upper part of the Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—clay loam, loam, or sandy clay loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 10 percent

Lower part the Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—gravelly sandy clay loam, gravelly loam, gravelly clay loam, or gravelly sandy loam
Reaction—moderately acid to slightly alkaline
Content of rock fragments—15 to 30 percent

2Cg horizon:
Hue—10YR
Value—4 to 7
Chroma—1 to 4
Texture—the gravelly or very gravelly analogs of loamy coarse sand, coarse sand, or sand with common thin strata of sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 55 percent

Sloan Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls

Typical Pedon for the Series

Sloan silty clay loam, on a slope of less than 1 percent, in a cultivated field, 2,600 feet south and 1,980 feet west of the intersection of State Route 49 and Siegrist-Jutte Road; SW$^1/_4$NE$^1/_4$ sec. 6, T. 7 S., R. 1 E., Mercer County, Ohio; Recovery Township; about 2$^1/_2$ miles north of Fort Recovery; Fort Recovery, Indiana-Ohio, topographic quadrangle; lat. 40 degrees 27 minutes 28.8 seconds north and long. 84 degrees 47 minutes 28.0 seconds west; 687,292 easting and 4,480,736 northing UTM zone 17, NAD 27:

Ap—0 to 9 inches; very dark gray (10YR 3/1) silty clay loam, very dark grayish brown (10YR 3/2) rubbed, gray (10YR 5/1) dry; moderate fine and medium angular blocky structure; friable; many fine roots; neutral; abrupt smooth boundary.

A—9 to 15 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate medium angular blocky structure; friable; many fine roots; few medium distinct dark yellowish brown (10YR 3/4) accumulations of iron in the matrix; neutral; gradual wavy boundary.

Bg1—15 to 21 inches; dark gray (10YR 4/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common medium distinct dark yellowish brown (10YR 4/4) accumulations of iron in the matrix; few dark iron and manganese concretions throughout; neutral; gradual wavy boundary.

Bg2—21 to 34 inches; gray (10YR 5/1) and dark gray (10YR 4/1) silty clay loam; weak medium subangular blocky structure; firm; few fine roots; many medium prominent brown (7.5YR 4/4) and few fine prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; few dark iron and manganese concretions throughout; neutral; clear smooth boundary.

BCg—34 to 45 inches; gray (10YR 5/1) clay loam;

massive; friable; many coarse prominent strong brown (7.5YR 5/6) accumulations of iron in the matrix; slightly alkaline; gradual wavy boundary.

Cg—45 to 60 inches; gray (10YR 5/1), stratified loam, silt loam, silty clay loam, and sandy loam; massive; friable; many coarse distinct and prominent yellowish brown (10YR 5/4 and 5/6) accumulations of iron in the matrix; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 20 to 60 inches
Thickness of the mollic epipedon: 10 to 24 inches
Depth to carbonates: 22 to 80 inches

Ap and A horizons:
Hue—10YR, 2.5Y, or neutral
Value—2 or 3
Chroma—0 to 2
Texture—silty clay loam, silt loam, loam, clay loam, or sandy loam
Reaction—slightly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

Bg horizon:
Hue—10YR to 5Y or neutral
Value—3 to 5
Chroma—0 to 2
Texture—silty clay loam, clay loam, silt loam, or loam
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 5 percent

BCg horizon:
Hue—10YR to 5Y or neutral
Value—3 to 6
Chroma—0 to 4
Texture—silty clay loam, clay loam, silt loam, or loam
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 14 percent

Cg horizon:
Hue—10YR to 5Y
Value—3 to 6
Chroma—1 to 4
Texture—stratified silty clay loam, clay loam, sandy loam, loam, silt loam, or the gravelly analogs of those textures
Reaction—neutral to moderately alkaline
Content of rock fragments—0 to 34 percent

Southwest Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Pedon for the Series

Southwest silt loam, on a concave slope of 1 percent, in a cultivated field, 129 feet west and 1,167 feet south of the northeast corner of sec. 8, T. 36 N., R. 5 E., Elkhart County, Indiana; about 3 miles north and 2 miles east of the town of Wakarusa; USGS Foraker topographic quadrangle; lat. 41 degrees 35 minutes 28 seconds north and long. 85 degrees 57 minutes 53 seconds west, 586,287 easting and 4,604,697 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common very fine and fine roots throughout; slightly acid; clear wavy boundary.

Bg1—10 to 18 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; many fine and medium moderate-continuity interstitial and tubular pores; common medium faint brown (10YR 4/3) accumulations of iron in the matrix; slightly acid; clear wavy boundary.

Bg2—18 to 23 inches; dark grayish brown (10YR 4/2) silty clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; common fine and medium moderate-continuity interstitial and tubular pores; common medium faint brown (10YR 4/3) accumulations of iron in the matrix; slightly acid; clear wavy boundary.

2Ab—23 to 34 inches; black (10YR 2/1) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; neutral; clear wavy boundary.

2Bgb—34 to 45 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; firm; many medium distinct brown (10YR 5/3) and common fine prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; neutral; clear wavy boundary.

3Ab1—45 to 55 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak coarse subangular blocky structure; firm; common medium prominent dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; neutral; gradual wavy boundary.

3Ab2—55 to 75 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak thick platy structure; friable; common medium prominent dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; neutral; gradual wavy boundary.

3Cg—75 to 80 inches; dark gray (5Y 4/1) silt loam;

massive; friable; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Thickness of the overwash and depth to a buried soil: 20 to 40 inches
Depth to carbonates: 40 to more than 80 inches
Content of rock fragments below the overwash: 0 to 5 percent

Ap horizon:
Hue—10YR
Value—4
Chroma—2 or 3
Reaction—slightly acid or neutral

Bg horizon:
Hue—10YR or neutral
Value—4 or 5
Chroma—0 to 2
Texture—silt loam or silty clay loam
Reaction—slightly acid or neutral

2Ab, 2Bgb, and 3Ab horizons:
Hue—10YR or 2.5Y
Value—2 to 6
Chroma—1 or 2
Texture—silty clay loam, silt loam, clay loam, or loam
Reaction—slightly acid to slightly alkaline

3Cg horizon:
Hue—10YR to 5Y
Value—4 or 5
Chroma—1 to 4
Texture—loam, silt loam, or clay loam
Reaction—slightly alkaline or moderately alkaline

St. Charles Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon for MLRA 111

Typical pedon of St. Charles silt loam, in a cultivated field, 2,360 feet east and 1,580 feet north of the southwest corner of sec. 29, T. 19 N., R. 5 W., Montgomery County, Indiana; about three-quarters of a mile south of Wesly; USGS Waynetown topographic quadrangle; 499,256 easting and 4,433,973 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, brown (10YR 5/3) dry; moderate fine and medium granular structure; friable; many roots; moderately acid; abrupt smooth boundary.

Bt1—9 to 17 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; many fine roots; many fine pores; common continuous distinct brown (7.5YR 4/4) clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt2—17 to 24 inches; strong brown (7.5YR 5/6) silty clay loam; moderate coarse subangular blocky structure; firm; many fine roots; many fine pores; common continuous distinct dark reddish brown (5YR 3/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt3—24 to 33 inches; brown (7.5YR 4/4) silty clay loam; moderate coarse subangular blocky structure; firm; common fine roots; many fine pores; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; strongly acid; gradual smooth boundary.

Bt4—33 to 44 inches; strong brown (7.5YR 4/6) silt loam; moderate coarse subangular blocky structure; firm; few fine roots; many fine pores; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; very strongly acid; gradual wavy boundary.

Bt5—44 to 49 inches; dark yellowish brown (10YR 4/4) silt loam; moderate coarse subangular blocky structure; friable; common pores; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; few distinct pale brown (10YR 6/3) clay depletions on faces of peds; very strongly acid; clear wavy boundary.

2Bt6—49 to 56 inches; brown (7.5YR 4/4) fine sandy loam; weak coarse subangular blocky structure; friable; common pores; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; 3 percent gravel; strongly acid; gradual wavy boundary.

2Bt7—56 to 63 inches; dark yellowish brown (10YR 4/4) loam; weak coarse subangular blocky structure; friable; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; 5 percent gravel; strongly acid; gradual wavy boundary.

2C—63 to 70 inches; strong brown (7.5YR 4/6) fine sandy loam; massive; friable; 5 percent gravel; strongly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 35 to 70 inches
Depth to the base of soil development: 44 to 70 inches

Thickness of the loess: 40 to 60 inches
Depth to carbonates: More than 44 inches

Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Reaction—strongly acid to slightly alkaline

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Reaction—very strongly acid to neutral

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam, sandy loam, fine sandy loam, sandy clay loam, clay loam, or silt loam
Reaction—strongly acid to neutral
Content of rock fragments—0 to 14 percent

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam, loam, sandy loam, fine sandy loam, gravelly loam, or gravelly sandy loam
Reaction—moderately acid to moderately alkaline
Content of rock fragments—0 to 20 percent

Starks Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for MLRA 111

Starks silt loam, in a cultivated area of Starks-Crosby silt loams, 1,850 feet west and 530 feet south of the northeast corner of sec. 23, T. 18 N., R. 3 W., Montgomery County, Indiana; about 2 miles north of New Ross; USGS New Ross topographic quadrangle; 523,790 easting and 4,476,174 northing UTM zone 16, NAD 27:

Ap—0 to 11 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; neutral; clear smooth boundary.

Bt1—11 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure parting to moderate fine subangular blocky; firm; few fine roots; common fine pores; common continuous distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; few discontinuous distinct very dark gray (10YR 3/1) iron and manganese accumulations on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; few discontinuous distinct brown (10YR 5/3) clay depletions on faces of peds; slightly acid; clear smooth boundary.

Bt2—21 to 36 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse subangular blocky structure; firm; common fine roots; common fine pores; common continuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common medium distinct dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; few discontinuous distinct black (10YR 2/1) iron and manganese accumulations on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; few discontinuous distinct brown (10YR 5/3) clay depletions on faces of peds; moderately acid; clear smooth boundary.

2Bt3—36 to 49 inches; dark yellowish brown (10YR 4/4) clay loam; weak coarse subangular blocky structure; firm; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; common distinct dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear smooth boundary.

2C1—49 to 55 inches, yellowish brown (10YR 5/4) silt loam; massive; firm; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; strongly effervescent; moderately alkaline; clear smooth boundary.

2C2—55 to 60 inches; brown (10YR 5/3) silt loam; strata of very fine sand less than 1 inch thick; massive; firm; many fine faint grayish brown (10YR 5/2) iron depletions in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 35 to more than 60 inches
Thickness of the loess: 24 to 40 inches
Depth to carbonates: 40 to 70 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 3
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam
Reaction—very strongly acid to slightly acid

2Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—loam, clay loam, silty clay loam, silt loam, or sandy loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—0 to 5 percent

2C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—stratified loamy sand, sandy loam, loam, silt loam, or sandy clay loam
Reaction—strongly acid to moderately alkaline
Content of rock fragments—0 to 14 percent

Strawn Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon for MLRA 111

Strawn loam, in a wooded area, 620 feet west and 2,100 feet north of the southeast corner of sec. 13, T. 23 N., R. 3 W., Tippecanoe County, Indiana; about 1 1/2 miles northeast of Petit; USGS Pyrmont topographic quadrangle; 515,932 easting and 4,476,174 northing UTM zone 16, NAD 27:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many medium roots; neutral; clear smooth boundary.

E—3 to 9 inches; brown (10YR 4/3) loam; weak fine subangular blocky structure parting to moderate medium granular; friable; many medium roots; many fine pores; few discontinuous faint very dark grayish brown (10YR 3/2) organic stains on faces of peds and in pores; moderately acid; clear smooth boundary.

Bt—9 to 16 inches; dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky structure; firm; common medium roots; common fine pores; common continuous distinct dark yellowish brown (10YR 3/4) clay films on faces of peds; 4 percent gravel; neutral; clear wavy boundary.

C—16 to 60 inches; yellowish brown (10YR 5/4) loam; moderate thick platy fragments; very firm; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 16 to 24 inches
Depth to carbonates: 14 to 24 inches

A or Ap horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—loam or silt loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 7 percent

E horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Texture—silt loam or loam
Reaction—moderately acid to neutral
Content of rock fragments—0 to 7 percent

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—clay loam, silty clay loam, or loam
Reaction—moderately acid to slightly alkaline
Content of rock fragments—3 to 14 percent

C horizon:
Hue—7.5YR to 2.5Y
Value—5 or 6
Chroma—2 to 6
Texture—loam, silt loam, clay loam, or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—3 to 14 percent

Throckmorton Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Throckmorton silt loam, on a slope of 1 percent, in a cultivated field, 590 feet east and 100 feet north of the southwest corner of sec. 27, T. 22 N., R. 6 W., Tippecanoe County, Indiana; about three-quarters of a mile east of Roberts; USGS Westpoint topographic quadrangle; 492,299 easting and 4,462,667 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; neutral; abrupt smooth boundary.

Bt1—9 to 12 inches; brown (10YR 4/3) silt loam; moderate fine subangular blocky structure; firm; common very fine vesicular pores; common continuous distinct dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—12 to 22 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; many very fine vesicular pores; common continuous distinct dark brown (10YR 3/3) organo-clay films on faces of peds; strongly acid; clear smooth boundary.

Bt3—22 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; many very fine vesicular pores; common continuous distinct brown (10YR 4/3) clay films on faces of peds; very strongly acid; clear smooth boundary.

Bt4—29 to 34 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; many very fine tubular pores; common continuous distinct brown (10YR 4/3) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; very strongly acid; clear smooth boundary.

2Bt5—34 to 42 inches; dark yellowish brown (10YR 4/4) clay loam; moderate coarse subangular blocky structure; firm; many very fine tubular pores; common continuous distinct dark brown (7.5YR 3/2) organo-clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent gravel; very strongly acid; clear wavy boundary.

2Bt6—42 to 45 inches; brown (10YR 4/3) sandy loam; moderate coarse subangular blocky structure; firm; many very fine tubular pores; common discontinuous distinct dark brown (10YR 3/3) clay films on faces of peds; common medium dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; common fine black (N 2.5/0) manganese accumulations; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; 12 percent gravel; moderately acid; clear smooth boundary.

3Bt7—45 to 58 inches; brown (10YR 5/3) loam; weak coarse subangular blocky structure; firm; common very fine tubular pores; common discontinuous distinct dark brown (10YR 3/3) clay films on faces of peds; few fine black (N 2.5/0) manganese accumulations; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; 6 percent gravel; slightly acid; gradual wavy boundary.

3Cd—58 to 65 inches; yellowish brown (10YR 5/4) loam; massive, but well defined horizontal and vertical fracture planes, which define plates 2 to 5 inches horizontally and 0.5 to 1 inch vertically; very firm; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 6 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches
Thickness of the loess: 24 to 40 inches
Depth to carbonates: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—3
Chroma—1 to 3
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid to slightly acid

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 4
Texture—clay loam, sandy clay loam, or sandy loam
Reaction—very strongly acid to moderately acid
Content of rock fragments—1 to 14 percent

3Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Reaction—slightly acid or neutral
Content of rock fragments—3 to 10 percent

3Cd horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Reaction—slightly alkaline or moderately alkaline

Content of rock fragments—3 to 10 percent

Toronto Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Udollic Epiaqualfs

Typical Pedon for the Series

Toronto silt loam, on a slope of 1 percent, in a cultivated field, 420 feet east and 1,770 feet south of the northwest corner of sec. 13, T. 25 N., R. 6 W., White County, Indiana; about 2 miles northwest of Round Grove; USGS Round Grove topographic quadrangle; 495,255 easting and 4,495,925 northing UTM zone 16, NAD 83.

Ap—0 to 9 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; common fine and very fine roots; slightly acid; abrupt smooth boundary.

Eg—9 to 12 inches; dark gray (10YR 4/1) silt loam; moderate fine granular structure; friable; few fine roots; common medium distinct yellowish brown (10YR 5/4) accumulations of iron in the matrix; moderately acid; clear wavy boundary.

Bt1—12 to 16 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; many prominent continuous dark gray (10YR 4/1) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; many medium faint dark grayish brown (10YR 4/2) iron depletions in the matrix; moderately acid; clear wavy boundary.

Bt2—16 to 25 inches; yellowish brown (10YR 5/4) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common continuous distinct dark gray (10YR 4/1) clay films on faces of peds; common medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

Bt3—25 to 32 inches; pale brown (10YR 6/3) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common continuous distinct dark gray (10YR 4/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; common medium faint grayish brown (10YR 5/2) iron depletions in the matrix; neutral; clear wavy boundary.

2BCt—32 to 53 inches; pale brown (10YR 6/3) loam; weak coarse subangular blocky structure; firm; few discontinuous faint light brownish gray (10YR 6/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; many medium distinct gray (10YR 5/1) iron depletions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline; gradual wavy boundary.

2C—53 to 60 inches; light yellowish brown (10YR 6/4) silt loam; massive; firm; common fine faint yellowish brown (10YR 5/4) accumulations of iron in the matrix; common fine distinct gray (10YR 6/1) iron depletions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches
Thickness of the loess: 22 to 40 inches

Ap horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Reaction—moderately acid to neutral

Eg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Reaction—strongly acid or moderately acid

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam or silt loam
Reaction—very strongly acid to neutral

2BCt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—loam or clay loam
Reaction—moderately acid to moderately alkaline
Content of rock fragments—1 to 10 percent

2C horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—loam or silt loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 14 percent

Totanang Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls

Typical Pedon for the Series

Totanang silt loam, on a convex slope of 1 percent, in a cultivated field, 2,450 feet west and 800 feet north of the southeast corner of sec. 8, T. 22 N., R. 9 W., Warren County, Indiana; about 1 mile east of Stewart; USGS West Lebanon topographic quadrangle; lat. 40 degrees 21 minutes 43.37 seconds north and long. 87 degrees 27 minutes 44.44 seconds west; 460,744 easting and 4,467,845 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; many very fine roots; slightly acid; abrupt smooth boundary.

A—9 to 12 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; many very fine roots; slightly acid; clear wavy boundary.

Bt1—12 to 22 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; common discontinuous distinct brown (10YR 4/3) clay films on faces of peds; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; clear wavy boundary.

Bt2—22 to 34 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; common very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds; common distinct very dark grayish brown (10YR 3/2) organic coatings on faces of peds; moderately acid; clear wavy boundary.

2Bt3—34 to 43 inches; yellowish brown (10YR 5/4) loam; moderate medium subangular blocky structure; friable; few very fine roots; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; few fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 10 percent gravel; slightly acid; gradual wavy boundary.

2Bt4—43 to 54 inches; brown (7.5YR 5/4) sandy loam; moderate medium subangular blocky structure; very friable; common discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; common fine distinct grayish brown (10YR 5/2) iron depletions in the matrix; 14 percent gravel; neutral; clear wavy boundary.

2Bt5—54 to 62 inches; yellowish brown (10YR 5/4) gravelly sandy loam; weak coarse subangular blocky structure; very friable; common discontinuous distinct dark yellowish brown (10YR 4/4) clay bridges between sand grains; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 22 percent gravel; neutral; clear wavy boundary.

3C—62 to 80 inches; brown (10YR 5/3) very gravelly coarse sand; single grain; loose; 40 percent gravel; slightly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 70 inches
Thickness of the loess: 24 to 60 inches
Thickness of the mollic epipedon: 10 to 20 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Reaction—moderately acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam
Reaction—moderately acid to neutral

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 4
Texture—loam, sandy loam, clay loam, gravelly sandy loam, or gravelly loamy sand
Reaction—moderately acid to slightly alkaline
Content of rock fragments—5 to 25 percent

3C horizon:
Hue—10YR
Value—4 to 7
Chroma—2 to 6
Texture—gravelly coarse sand, very gravelly coarse sand, or gravelly loamy coarse sand
Reaction—neutral to moderately alkaline
Content of rock fragments—15 to 50 percent

Treaty Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for the Series

Treaty silty clay loam, on a plane slope of less than 1 percent, in a cultivated field, 700 feet east and 1,950 feet north of the southwest corner of sec. 35, T. 20 N., R. 5 W., Montgomery County, Indiana; about 2$^3/_4$ miles west of Cherry Grove; USGS Linden topographic quadrangle; 503,527 easting and 4,442,185 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silty clay loam, very dark grayish brown (10YR 3/2) dry; moderate fine granular structure; friable; many fine roots; slightly acid; abrupt smooth boundary.

A—10 to 14 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; weak fine subangular blocky structure parting to weak fine granular; firm; slightly acid; clear smooth boundary.

Btg1—14 to 22 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; many discontinuous distinct olive gray (5Y 5/2) clay films on faces of peds and along surfaces of pores; many continuous distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct light olive brown (2.5Y 5/4) accumulations of iron in the matrix; neutral; clear wavy boundary.

Btg2—22 to 36 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine pores; many discontinuous distinct grayish brown (2.5Y 5/2) clay films on faces of peds and along surfaces of pores; few fine distinct light olive brown (2.5Y 5/4) accumulations of iron in the matrix; few black (10YR 2/1) iron and manganese concretions; neutral; clear wavy boundary.

2Btg3—36 to 59 inches; gray (10YR 5/1) loam; weak medium subangular blocky structure; firm; many discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; 5 percent gravel; neutral; clear wavy boundary.

2C—59 to 70 inches; yellowish brown (10YR 5/4) loam; massive; firm; common medium distinct gray (10YR 5/1) iron depletions in the matrix; 5 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 65 inches
Thickness of the loess: 24 to 40 inches
Thickness of the mollic epipedon: 10 to 18 inches

Ap and A horizons:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or silt loam
Reaction—moderately acid to neutral

Btg horizon:
Hue—2.5Y or 10YR
Value—3 to 5
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—slightly acid to slightly alkaline

2Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—loam, clay loam, or silty clay loam
Reaction—neutral to moderately alkaline
Content of rock fragments—2 to 10 percent

2C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 10 percent

Waupecan Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls

Typical Pedon for MLRA 111

Waupecan silt loam, on a nearly level slope, in a cultivated field, 150 feet east and 260 feet north of the southwest corner of sec. 2, T. 20 N., R. 6 W., Montgomery County, Indiana; about 2 miles north of Wingate; USGS Wingate topographic quadrangle; 493,818 easting and 4,449,848 northing UTM zone 16, NAD 27:

Ap—0 to 11 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; slightly acid; clear smooth boundary.

Bt1—11 to 16 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium and fine subangular blocky structure; firm; common fine roots; common fine pores; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; common distinct dark brown (10YR 3/3) organic coatings on faces of peds; slightly acid; clear smooth boundary.

Bt2—16 to 35 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common fine pores; common discontinuous distinct brown (7.5YR 4/4) and dark brown (10YR 3/3) clay films on faces of peds; few clean sand grains in the lower part; moderately acid; gradual smooth boundary.

2Bt3—35 to 48 inches; dark yellowish brown (10YR 4/4) loam; moderate coarse subangular blocky structure; firm; common discontinuous distinct brown (7.5YR 4/4) and dark brown (10YR 3/3) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt4—48 to 61 inches; dark yellowish brown (10YR 4/4) gravelly coarse sandy loam; weak coarse subangular blocky structure; firm; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds and as bridges between sand grains; 18 percent gravel; moderately acid; gradual smooth boundary.

2Bt5—61 to 67 inches; dark yellowish brown (10YR 4/4) gravelly sandy clay loam; weak coarse subangular blocky structure; firm; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds and as bridges between sand grains; 20 percent gravel; moderately acid; clear wavy boundary.

2Bt6—67 to 72 inches; dark reddish brown (5YR 3/3) gravelly sandy clay loam; weak coarse subangular blocky structure; firm; common discontinuous distinct dusky red (2.5YR 3/2) clay films bridging sand grains; 25 percent gravel; neutral; abrupt wavy boundary.

3C—72 to 80 inches; yellowish brown (10YR 5/4) gravelly coarse sand; single grain; loose; 25 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 72 inches

Thickness of the loess: 24 to 48 inches

Thickness of the mollic epipedon: 10 to 20 inches

Depth to horizons with more than 15 percent gravel and 75 percent sand: 40 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Reaction—slightly acid to slightly alkaline

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Reaction—moderately acid to neutral

2Bt horizon:
Hue—5YR to 10YR
Value—3 to 5
Chroma—3 to 6
Texture—loam, sandy clay loam, sandy loam, coarse sandy loam, loamy sand, or the gravelly analogs of those textures
Reaction—moderately acid to neutral
Content of rock fragments—0 to 34 percent

3C horizon:
Hue—5YR to 10YR
Value—3 to 6
Chroma—3 to 6
Texture—stratified gravelly or very gravelly coarse sand or gravelly or very gravelly loamy coarse sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 70 percent

Waynetown Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for the Series

Waynetown silt loam, on a slope of 1 percent, in a cultivated field, 2,376 feet north and 924 feet east of the southwest corner of sec. 18, T. 19 N., R. 4 W., Montgomery County, Indiana; about 2 miles north of Crawfordsville; USGS Crawfordsville topographic quadrangle; 507,614 easting and 4,436,862 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.

E—10 to 14 inches; grayish brown (10YR 5/2) silt loam; weak medium subangular blocky structure;

friable; common fine roots; common fine pores; common medium distinct dark yellowish brown (10YR 4/4) accumulations of iron in the matrix; few continuous distinct pale brown (10YR 6/3) clay depletions on faces of peds; moderately acid; clear smooth boundary.

Bt—14 to 21 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; common fine roots; common fine pores; common discontinuous 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; few discontinuous distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; few clean sand grains; moderately acid; clear smooth boundary.

Btg1—21 to 32 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; few fine pores; common discontinuous distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; few continuous distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; few clean sand grains; moderately acid; clear wavy boundary.

2Btg2—32 to 45 inches; grayish brown (10YR 5/2) loam; moderate medium and coarse subangular blocky structure; firm; common continuous distinct grayish brown (10YR 5/2) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; few pebbles; moderately acid; clear wavy boundary.

3Btg3—45 to 57 inches; gray (10YR 5/1) gravelly sandy clay loam; moderate coarse subangular blocky structure; firm; common discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few medium distinct dark yellowish brown (10YR 4/4) accumulations of iron in the matrix; 16 percent gravel; slightly acid; clear wavy boundary.

3Btg4—57 to 70 inches; dark gray (N 4/0) gravelly sandy clay loam; weak coarse subangular blocky structure; firm; common discontinuous distinct very dark gray (N 3/0) clay films on faces of peds; few medium prominent yellowish brown (10YR 5/4) accumulations of iron in the matrix; 17 percent gravel; slightly effervescent in the lower 5 inches; neutral; gradual wavy boundary.

3Cg—70 to 75 inches; gray (10YR 5/1) gravelly coarse sand; single grain; loose; 25 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 50 to 80 inches
Thickness of the loess: 20 to 40 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Reaction—strongly acid to neutral

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2
Reaction—strongly acid to neutral

Bt and Btg horizons:
Hue—10YR
Value—4 or 5
Chroma—2 to 6
Reaction—moderately acid or slightly acid

2Btg horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 4
Texture—clay loam or loam
Reaction—moderately acid or slightly acid
Content of rock fragments—0 to 5 percent

3Btg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 or 5
Chroma—0 to 4
Texture—gravelly clay loam, gravelly sandy clay loam, or gravelly loam
Reaction—slightly acid or neutral
Content of rock fragments—15 to 30 percent

3Cg horizon:
Hue—10YR
Value—4 or 5
Chroma—1 or 2
Texture—gravelly loamy coarse sand or gravelly coarse sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—15 to 30 percent

Wea Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Argiudolls

Typical Pedon for MLRA 111

Wea loam, on a slope of 1 percent, in a cultivated field, 2,500 feet east and 2,500 feet north of the southwest corner of sec. 35, T. 18 N., R. 9 W., Fountain County, Indiana; on the north edge of the village of Silverwood; USGS Newport topographic quadrangle; 465,515 easting and 4,423,068 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; dark brown (10YR 3/3) loam, brown (10YR 5/3) dry; moderate medium granular structure; friable; many fine roots; moderately acid; abrupt smooth boundary.

Bt1—10 to 16 inches; brown (7.5YR 4/4) clay loam; moderate fine and medium subangular blocky structure; firm; few fine roots; common very fine and fine tubular pores; common discontinuous faint brown (7.5YR 4/3) clay films on faces of peds; 10 percent gravel; moderately acid; clear smooth boundary.

Bt2—16 to 20 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; common very fine and fine tubular pores; many continuous distinct reddish brown (5YR 4/3) clay films on faces of peds; 14 percent gravel; moderately acid; clear smooth boundary.

2Bt3—20 to 30 inches; brown (7.5YR 4/4) gravelly sandy clay loam; moderate medium subangular blocky structure; firm; common very fine interstitial pores; common discontinuous faint brown (7.5YR 4/3) clay films on faces of peds; 25 percent gravel; moderately acid; clear smooth boundary.

2Bt4—30 to 44 inches; brown (7.5YR 4/4) gravelly sandy clay loam; weak coarse subangular blocky structure; firm; common discontinuous distinct brown (7.5YR 4/3) clay films coating sand grains; 15 percent gravel; neutral; clear wavy boundary.

2BC—44 to 54 inches; brown (7.5YR 4/4) gravelly sandy loam; weak coarse subangular blocky structure; friable; 20 percent gravel; slightly effervescent; moderately alkaline; clear wavy boundary.

3C—54 to 80 inches; yellowish brown (10YR 5/4) gravelly coarse sand; single grain; loose; 25 percent gravel; slightly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 70 inches
Thickness of the mollic epipedon: 10 to 20 inches
Depth to carbonates: 40 to 70 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—2 or 3
Texture—loam or silt loam
Reaction—moderately acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4
Texture—silty clay loam, silt loam, clay loam, or loam
Reaction—strongly acid to slightly acid
Content of rock fragments—0 to 14 percent

2Bt and 2BC horizons:
Hue—5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—gravelly loam, gravelly sandy loam, or gravelly sandy clay loam
Reaction—moderately acid to neutral
Content of rock fragments—15 to 34 percent

3C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—very gravelly or gravelly coarse sand or very gravelly or gravelly loamy sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—20 to 56 percent

Westland Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon for MLRA 111

Westland silty clay loam, in a cultivated field, 250 feet north and 1,730 feet east of the southwest corner of sec. 1, T. 13 N., R. 1 W., Wayne County, Indiana; about 2 miles west of Richmond; USGS New Paris topographic quadrangle; 685,988 easting and 4,409,249 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak fine granular structure; friable; common medium roots; 2 percent gravel; slightly acid; abrupt smooth boundary.

BA—10 to 16 inches; dark gray (10YR 4/1) silty clay loam; moderate fine subangular blocky structure; firm; common medium roots; 5 percent gravel; neutral; clear wavy boundary.

Btg1—16 to 21 inches; dark gray (10YR 4/1) silty clay loam; moderate medium subangular blocky structure; firm; common medium roots; common discontinuous distinct dark grayish brown (2.5Y 4/2) clay films on faces of peds; 5 percent gravel; neutral; clear wavy boundary.

2Btg2—21 to 29 inches; dark gray (10YR 4/1) clay loam; moderate medium subangular blocky structure; firm; common patchy distinct very dark grayish brown (10YR 3/2) clay films on faces of peds; few medium roots; 10 percent gravel; neutral; clear wavy boundary.

2Btg3—29 to 37 inches; olive gray (5Y 5/2) clay loam; strong medium subangular blocky structure; firm; few fine roots; common patchy distinct gray (10YR 5/1) clay films on faces of peds; few fine prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; few fine distinct dark gray (10YR 4/1) iron depletions in the matrix; 10 percent gravel; neutral; clear wavy boundary.

2BCg—37 to 47 inches; grayish brown (10YR 5/2) loam; weak medium subangular blocky structure; friable; few fine roots; common fine faint gray (10YR 6/1) iron depletions in the matrix; 10 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cg—47 to 60 inches; light brownish gray (10YR 6/2) gravelly coarse sand; single grain; loose; 40 percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 30 to 55 inches
Depth to the base of soil development: 40 to 60 inches
Thickness of the mollic epipedon: 10 to 20 inches

Ap or A horizon:
Hue—10YR, 2.5Y, or neutral
Value—2, 2.5, or 3
Chroma—0 to 3
Texture—silty clay loam, clay loam, loam, or silt loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent

BA horizon (where present):
Hue—10YR
Value—4
Chroma—1
Texture—silty clay loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent

Btg horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam, loam, or clay loam
Reaction—slightly acid or neutral
Content of rock fragments—0 to 5 percent in the upper part and 1 to 14 percent in the lower part

2Btg and 2BCg horizons:
Hue—10YR, 2.5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—loam, clay loam, sandy clay loam, or the gravelly or very gravelly analogs of those textures
Reaction—neutral or slightly alkaline
Content of rock fragments—5 to 40 percent

2Cg horizon:
Hue—10YR, 2.5Y, or neutral
Value—3 to 7
Chroma—0 to 4
Texture—stratified gravelly or very gravelly coarse sand or gravelly or very gravelly loamy coarse sand
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—20 to 50 percent

Whitaker Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aeric Endoaqualfs

Typical Pedon for the Series

Whitaker loam, on a slope of less than 1 percent, in a cultivated field, 1,000 feet north and 2,100 feet west of the southeast corner of sec. 11, T. 34 N., R. 3 E., Marshall County, Indiana; about 2 miles south of Bremen; USGS Bremen topographic quadrangle; lat. 41 degrees 24 minutes 36 seconds north and long. 86 degrees 8 minutes 39 seconds west; 5771,529 easting and 4,584,426 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

E—9 to 17 inches; brown (10YR 5/3) loam; moderate medium subangular blocky structure; friable; common fine roots; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; common medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid; clear wavy boundary.

Btg1—17 to 27 inches; grayish brown (10YR 5/2) clay loam; moderate medium subangular blocky structure; firm; many continuous distinct gray (10YR 5/1) clay films on faces of peds; common medium prominent yellowish brown (10YR 5/8) accumulations of iron in the matrix; common fine black (10YR 2/1) iron and manganese concretions; 2 percent fine gravel; strongly acid; gradual wavy boundary.

Btg2—27 to 39 inches; grayish brown (10YR 5/2) sandy clay loam; moderate medium subangular blocky structure; firm; many discontinuous distinct gray (10YR 5/1) clay films on faces of peds; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; common fine black (10YR 2/1) iron and manganese concretions; 2 percent fine gravel; moderately acid; clear wavy boundary.

BC—39 to 48 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky structure; friable; common medium distinct gray (10YR 5/1) iron depletions in the matrix; slightly acid; clear wavy boundary.

C—48 to 60 inches; brown (10YR 5/3), stratified silt loam and loam with thin strata of loamy sand; massive; friable; common fine faint grayish brown (10YR 5/2) iron depletions in the matrix; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 32 to 60 inches
Thickness of the silty material: 0 to 20 inches
Content of rock fragments: 0 to 5 percent in the solum

Ap horizon:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—loam, silt loam, fine sandy loam, or sandy loam
Reaction—moderately acid to neutral

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam, loam, fine sandy loam, or sandy loam
Reaction—moderately acid or slightly acid

Btg or 2Btg horizon and BC or 2BC horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—loam, sandy loam, clay loam, sandy clay loam, or silty clay loam
Reaction—strongly acid to slightly alkaline

C or 2C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—stratified loam, silt loam, sandy loam, fine sandy loam, or very fine sandy loam with strata of coarse sandy loam, loamy coarse sand, coarse sand, sand, loamy fine sand, or loamy sand
Reaction—slightly acid to moderately alkaline
Content of rock fragments—0 to 14 percent

Williamstown Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Aquic Hapludalfs

Typical Pedon for the Series

Williamstown silt loam, on a convex slope of 4 percent, in a cultivated field, 1,030 feet west and 2,080 feet north of the southeast corner of sec. 23, T. 9 N., R. 8 E., Decatur County, Indiana; about 3 miles north and 1 mile west of Westport; USGS Westport topographic quadrangle; 621,049 easting and 4,340,836 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; 90 percent brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry, and 10 percent yellowish brown (10YR 5/4) clay loam from the subsoil; moderate medium granular structure; friable; moderately acid; abrupt smooth boundary.

2Bt1—9 to 18 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; many continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 1 percent gravel; strongly acid; clear wavy boundary.

2Bt2—18 to 33 inches; yellowish brown (10YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; many continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine black (10YR 2/1) iron and manganese concretions; common medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; 1 percent gravel; slightly acid; clear wavy boundary.

2BCt—33 to 37 inches; yellowish brown (10YR 5/6) loam; weak coarse subangular blocky structure; firm; common discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; 1 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cd—37 to 80 inches; yellowish brown (10YR 5/4) loam; massive; very firm; common fine distinct gray (10YR 6/1) iron depletions in the matrix; 1

percent gravel; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 20 to 40 inches
Thickness of the loess: 0 to 22 inches
Depth to carbonates: 20 to 40 inches
Content of rock fragments: 10 percent or less throughout the profile, dominantly of limestone and crystalline lithology

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam, loam, or clay loam
Reaction—strongly acid to neutral

2Bt or Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or clay loam
Reaction—strongly acid to neutral

2BCt or BCt horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—loam or fine sandy loam
Reaction—neutral to moderately alkaline

2Cd or Cd horizon:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline

Wingate Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon for the Series

Wingate silt loam, on a slope of 2 percent, in a cultivated field, 1,455 feet east and 985 feet north of the southwest corner of sec. 25, T. 15 N., R. 12 W., Edgar County, Illinois; about one-quarter of a mile northeast of Horace; USGS Paris North topographic quadrangle; lat. 39 degrees 43 minutes 23.0 seconds north and long. 87 degrees 42 minutes 7.0 seconds west; 439,840 easting and 4,397,055 northing UTM zone 16, NAD 27:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate medium subangular blocky structure parting to moderate fine granular; friable; many very fine roots; neutral; abrupt smooth boundary.

E—9 to 12 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium platy structure; friable; common very fine roots; neutral; abrupt smooth boundary.

Bt1—12 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; many continuous distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—22 to 27 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium angular blocky structure; firm; few very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

2Bt3—27 to 36 inches; yellowish brown (10YR 5/6) clay loam; moderate coarse subangular blocky structure; firm; few very fine roots; common continuous distinct brown (10YR 4/3) clay films on faces of peds; few distinct black (10YR 2/1) stains of iron and manganese oxide on faces of peds; common fine and medium irregular black (10YR 2/1) weakly cemented nodules of iron and manganese oxide throughout; few fine prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 2 percent fine gravel; moderately acid; clear smooth boundary.

2Bt4—36 to 52 inches; yellowish brown (10YR 5/4) clay loam; weak coarse subangular blocky structure; firm; few discontinuous distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few fine rounded black (10YR 2/1) weakly cemented nodules of iron and manganese oxide throughout; 5 percent fine gravel; neutral; gradual smooth boundary.

2C—52 to 60 inches; yellowish brown (10YR 5/4) loam; massive; firm; few fine rounded black (10YR 2/1) weakly cemented nodules of iron and manganese oxide throughout; 5 percent fine gravel; slightly effervescent; slightly alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 29 to 55 inches
Thickness of the loess: 20 to 40 inches
Depth to carbonates: 29 to 65 inches

Ap horizon:
Hue—10YR

Value—2 or 3
Chroma—1 to 3
Reaction—moderately acid to neutral

E horizon:
Hue—10YR
Value—4 or 5
Chroma—3
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Reaction—strongly acid to neutral

2Bt horizon:
Hue—10YR
Value—5 or 6
Chroma—2 to 6
Texture—clay loam or loam
Reaction—strongly acid to slightly alkaline
Content of rock fragments—1 to 7 percent

2C horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 6
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—1 to 10 percent

Xenia Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludalfs

Typical Pedon for the Series

Xenia silt loam, on a slope of 3 percent, in a cultivated field, 800 feet south and 2,400 feet east of the northwest corner of sec. 13, T. 4 N., R. 4 W., Putnam County, Indiana; about 2 miles east of Greencastle; USGS Greencastle topographic quadrangle; lat. 39 degrees 39 minutes 29.4 seconds north and long. 86 degrees 48 minutes 16.9 seconds west; 516,754 easting and 4,389,627 northing UTM zone 16, NAD 27:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; many fine pores; slightly acid; abrupt smooth boundary.

Bt1—10 to 18 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; friable; many fine roots; many fine pores; common discontinuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—18 to 30 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid; clear wavy boundary.

2Bt3—30 to 50 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; firm; common continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 3 percent rock fragments; neutral; clear wavy boundary.

2BCt—50 to 58 inches; yellowish brown (10YR 5/4) loam; weak medium subangular blocky structure; firm; few continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; 3 percent rock fragments; moderately alkaline; slightly effervescent; clear wavy boundary.

2Cd1—58 to 72 inches; yellowish brown (10YR 5/4) loam; massive; firm; few medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; 3 percent rock fragments; strongly effervescent; moderately alkaline; clear wavy boundary.

2Cd2—72 to 80 inches; yellowish brown (10YR 5/4) loam; massive; firm; few medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; 3 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics for MLRA 111

Depth to the base of the argillic horizon: 40 to 60 inches
Thickness of the loess: 22 to 40 inches
Depth to carbonates: 40 to 60 inches

Ap horizon:
Hue—10YR
Value—4
Chroma—2 to 4
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR
Value—4 to 6

Chroma—3 to 6
Reaction—strongly acid to neutral

2Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam or clay loam
Reaction—moderately acid to neutral
Content of rock fragments—2 to 8 percent

2BCt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—loam or clay loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 8 percent

2Cd horizon:
Hue—10YR
Value—5
Chroma—3 or 4
Texture—loam or fine sandy loam
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 8 percent

Yeddo Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon for the Series

Yeddo silt loam, on a convex slope of 1 percent, in a cultivated field, 2,380 feet west and 2,440 feet north of the southeast corner of sec. 27, T. 19 N., R. 6 W., Montgomery County, Indiana; about 2 miles south and three-quarters of a mile west of Waynetown; USGS Waynetown topographic quadrangle; lat. 40 degrees 3 minutes 35.44 seconds north and long. 87 degrees 4 minutes 54.16 seconds west; 493,031 easting and 4,434,202 northing UTM zone 16, NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; many fine roots throughout; common very dark gray (10YR 3/1) iron and manganese accumulations; moderately acid; abrupt smooth boundary.

E—8 to 9 inches; light brownish gray (10YR 6/2) silt loam, light gray (10YR 7/2) dry; weak fine subangular blocky structure parting to moderate medium granular; friable; common fine roots throughout; few medium distinct yellowish brown (10YR 5/4) accumulations of iron in the matrix; common very dark gray (10YR 3/1) iron and manganese accumulations; strongly acid; abrupt irregular boundary.

Btg—9 to 14 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots throughout; common fine pores; common continuous distinct grayish brown (10YR 5/2) clay films on faces of peds; many medium prominent dark yellowish brown (10YR 4/6) accumulations of iron in the matrix; few very dark gray (10YR 3/1) iron and manganese accumulations; common continuous distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; very strongly acid; clear smooth boundary.

Bt1—14 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots throughout; common fine pores; common continuous distinct gray (10YR 5/1) clay films on faces of peds; common dark grayish brown (10YR 4/2) fillings in root channels; few very dark gray (10YR 3/1) iron and manganese accumulations; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common discontinuous distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; moderately acid; clear smooth boundary.

Bt2—22 to 34 inches; yellowish brown (10YR 5/6) silty clay loam; weak coarse subangular blocky structure parting to moderate medium subangular blocky; firm; few fine roots throughout; few fine pores; common continuous distinct dark gray (10YR 4/1) and gray (10YR 5/1) clay films on faces of peds; common very dark gray (10YR 3/1) iron and manganese accumulations; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; common discontinuous distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; slightly acid; gradual smooth boundary.

Bt3—34 to 45 inches; light olive brown (2.5Y 5/4) silt loam; weak coarse subangular blocky structure; firm; common discontinuous distinct gray (10YR 5/1) clay films on faces of peds; many medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; few very dark gray (10YR 3/1) iron and manganese accumulations; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; slightly alkaline; gradual smooth boundary.

C1—45 to 55 inches; light olive brown (2.5Y 5/4) silt loam; massive; friable; many medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; many medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; few calcium carbonate nodules; slightly effervescent; moderately alkaline; gradual smooth boundary.

C2—55 to 76 inches; light olive brown (2.5Y 5/4) silt loam; massive; friable; many medium distinct yellowish brown (10YR 5/6) accumulations of iron in the matrix; many medium prominent grayish brown (10YR 5/2) iron depletions in the matrix; few calcium carbonate nodules; strongly effervescent; moderately alkaline; gradual smooth boundary.

2C3—76 to 80 inches; light olive brown (2.5Y 5/4) loam; massive; firm; many medium prominent yellowish brown (10YR 5/6) accumulations of iron in the matrix; strongly effervescent; 2 percent rock fragments; moderately alkaline.

Range in Characteristics for MLRA 111

Thickness of the solum: 30 to 60 inches
Thickness of the loess: More than 60 inches and generally less than 80 inches
Depth to carbonates: 26 to 55 inches

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Reaction—moderately acid to neutral

E horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Reaction—strongly acid to slightly acid

Bt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 6
Texture—silt loam or silty clay loam
Reaction—very strongly acid to slightly alkaline

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Reaction—slightly alkaline or moderately alkaline

2C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Reaction—slightly alkaline or moderately alkaline
Content of rock fragments—2 to 10 percent

Formation of the Soils

This section explains the major factors of soil formation that affected the soils in Fountain County and describes the processes of soil formation.

Factors of Soil Formation

Soil forms through processes acting on deposited or accumulated geologic material. The characteristics of the soil at any given point are determined by 1) the physical and mineralogical composition of the parent material; 2) the climate under which the soil formed; 3) the plant and animal life on and in the soil; 4) the relief, or lay of the land; and 5) the length of time that the forces of soil formation have acted on the soil material (Jenny, 1941).

Parent material greatly affects the kind of soil profile that forms. Climate and plant and animal life, chiefly plants, are active factors of soil formation. They act on the parent material that has accumulated through the weathering of rocks and slowly change it into a natural body that has genetically related horizons. Relief conditions the effects of climate and plant and animal life. Finally, time is needed for the transformation of the parent material into a soil. Some time is always required for the differentiation of soil horizons.

The factors of soil formation are so closely interrelated in their effects on the soil that few generalizations can be made regarding the effects of any one factor unless conditions are specified for the other four.

Parent Material and Geology

Parent material is the unconsolidated mass in which a soil forms. It includes residuum derived from sandstone, siltstone, or shale and clayey, sandy, or silty material deposited by glaciers, water, or wind.

The soils in Fountain County formed in glacial drift, outwash, and till of Wisconsinan age; loess, or windblown silty and sandy material; and sandstone, siltstone, and shale residuum. Some soils formed in two or more of these kinds of material. For example, the upper part of Rush soils formed in loess and the lower part in glacial outwash.

The county is underlain by bedrock of different kinds and age. Outcrops of sandstone or siltstone with shale are along most of the valleys of permanently flowing streams. Pennsylvanian bedrock is exposed in the western two-thirds of the county. This bedrock is primarily sandstone, but there is some shale and coal. Mississippian sandstone, siltstone, and shale bedrock is in the eastern one-third of the county (fig. 17).

When the glaciers first advanced into Fountain County, perhaps about a million years ago, the landscapes of the county were different from those of today. Meltwater flowing from the glaciers cut channels and rearranged the existing stream patterns. Fountain County has been glaciated several times. Each successive glacial advance made its mark on the land and, in so doing, eliminated some of the evidence of earlier glaciers.

Glaciers and their meltwater are agents of deposition. Over most of Fountain County, they left deposits as evidence of their activity. They deposited till, a compact mixture of pebbles, sand, silt, and clay, directly. Meltwater streams deposited sand and gravel known as outwash. Along the edges of some of the larger streams, the wind deposited dune sand. The wind also deposited blankets of silt, known as loess, over most of the county. The youngest deposits include sand and silt in the valleys of the present streams.

The county is covered by a mantle of glacial drift that ranges in thickness from less than 5 feet on rock terraces along the valley of the Wabash River to more than 200 feet in some of the preglacial valleys.

The terrace material along the Wabash River was carried in by glacial meltwater. As the glacial ice receded, it released a tremendous volume of water. This torrent carried an enormous amount of material that ranged in size from large boulders to very fine sand, silt, and clay. When the water lost its velocity, the material was deposited in very thick stratified beds along the stream channel.

Fountain County is completely covered by a mantle of loess that ranges from a few inches to more than 6 feet in thickness and is underlain by the landforms that existed when the loess was deposited. Deposits as much as 7 feet thick have been found. In about half of the county, the mantle of loess is 20 to 40 inches thick.

Figure 17.—Wolf Creek flowing over Mississippian sandstone bedrock in an area of Judyville fine sandy loam, 25 to 70 percent slopes.

Climate

Climate largely determines the kind of plant and animal life on and in the soil. It also determines the amount of water available for the weathering of minerals and the translocation of soil material. Temperature determines the rate of chemical reactions in the soil. These effects tend to be uniform in relatively small areas, such as those the size of a county.

The climate in Fountain County is generally cool and moist in winter and hot and humid in summer. It is presumably similar to the one that prevailed when the soils formed. The climate is nearly uniform throughout the county, and thus differences among the soils in the county are not the result of varied climatic conditions.

Plant and Animal Life

Plants have been one of the principal organisms influencing the soils in Fountain County, but bacteria, fungi, earthworms, and human activities also have been important. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic material in and on the soil depends on the kind of native plants that grew on the soil. The remains of these plants accumulated in the surface layer, decayed, and eventually became humus. The roots of the plants provided channels for the downward movement of water and air through the soil, and they added organic matter as they decayed. Bacteria in the soil help to break down the organic matter into plant nutrients.

Before human settlement of the county, the native vegetation was important in the complex of living organisms that affected soil formation. Plants, micro-organisms, earthworms, and other forms of life that live in and on the soil affect soil morphology.

The native vegetation in Fountain County can be assigned to three main groups, each of which played an important role in forming different kinds of soil. Prairie grasses covered the northern third of the county, and trees covered the southern two-thirds. Water-tolerant grasses, sedges, and reeds grew in scattered, large, level or depressional areas that were covered by water much of the time.

Only a small amount of organic matter is in forested soils that have never been cleared. These soils are covered with a thin layer of forest litter and leaf mold that comes from fallen leaves and twigs. This thin layer supplies organic matter that is mixed throughout the top 1 or 2 inches of surface soil.

Prairie grasses, on the other hand, add a large amount of organic matter that comes from the leafy material and from the large system of fine, fibrous roots. Because much of the year is cold, microbial activity is arrested, the organic matter does not decompose excessively, and much of it accumulates in the mineral soils. Consequently, prairie soils in the northern third of the county have a dark surface layer that is high in content of organic matter.

Micro-organisms need a certain amount of oxygen to decompose organic matter. They cannot get the oxygen they need if the soil is waterlogged. Although less vegetative matter accumulates each year in swampy areas than in prairie areas, less is decomposed and a large amount of the organic matter remains. Hence, the content of organic matter is high in soils that are covered by water most of the year.

Relief

Slopes in Fountain County range from nearly level on bottom lands, terraces, and upland flats to very steep on breaks (fig. 18). Except in the immediate area of the major streams, mainly in the western part of the county, most of the county has not been severely dissected by weathering and stream cutting.

Relief has affected drainage and the development of the soils in Fountain County. Relief influences soil formation by greatly affecting natural drainage, runoff, geologic or accelerated erosion, the plant cover, and soil temperature. Differences in relief strongly affect the content of moisture and of air in the soils. Where the parent material and climate are the same, less strongly developed soil profiles formed on steep slopes than in the more nearly level areas. This greater degree of horizon development on the strong slopes is the result of rapid geologic erosion, increased percolation of water through the soil, and an insufficient amount of water for vigorous plant growth. The amount of water passing through a soil largely determines the degree to which a soil profile develops in a given time, from a given parent material, and under a given kind of vegetation.

Runoff is most rapid on the steepest slopes. Low, depressional areas are often temporarily ponded. The greater the runoff rate, the greater the hazard of erosion.

Through its effect on aeration in the soil, drainage determines the major color of the soil. Water and air move freely through most well drained soils and slowly through very poorly drained soils. In Angatoka, Russell, and other well aerated soils, the iron and aluminum compounds that give most soils their color are reddish or brownish and are oxidized. Ragsdale, Treaty, and other poorly aerated soils that are saturated for long periods are dominantly gray and

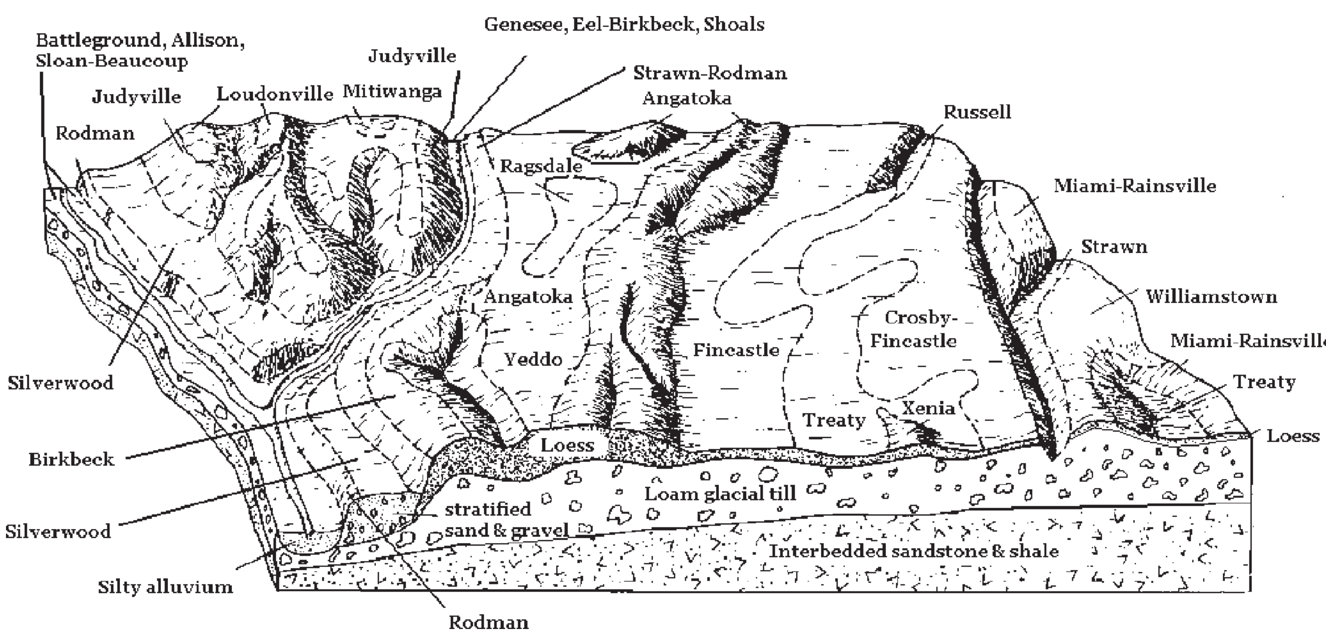


Figure 18.—Some of the major soil series in Fountain County in relation to their topography and parent material.

have reddish and brownish accumulations of iron. The soils are gray because the iron compounds are in a reduced state or have been removed from the profile.

Soils on west- and south-facing slopes generally have a warmer soil temperature than soils on north- and east-facing slopes.

Time

Generally, a long time is needed for the development of distinct soil horizons. The length of time that the parent material has been in place commonly reflects the degree of profile development.

Because of differences in parent material, in relief, and in climate, some soils mature more slowly than others. For example, Allison, Battleground, and other alluvial soils are immature because their parent material is young and new material is deposited periodically. Soils on steep slopes are likely to be immature because geologic erosion removes the soil material as fast as it accumulates. Also, because runoff is significant on steep slopes, less water moves downward through the soil. Some kinds of parent rock are so resistant to weathering that soil formation is very slow, even though other conditions favor soil formation. A mature soil is one that has well developed A and B horizons that were produced by the natural processes of soil formation. An immature soil is characterized by little or no horizon differentiation.

The most fully developed soil profiles in Fountain County occur in areas where the parent material has remained in place the longest. The geologically oldest soils, such as Cates and Judyville soils, which formed in sandstone, siltstone, and shale residuum, are along the steep breaks adjacent to the Wabash River. These soils are not so deep or so mature, however, as Miami, Williamstown, and other soils that formed in Wisconsinan till and drift and have a well developed soil profile. Natural geologic erosion is rapid on the soils on steep breaks, and the material has not been allowed to accumulate and mature.

The layer of thick loess in Fountain County was deposited shortly after deposition of the glacial material. Angatoka, Birkbeck, and other soils formed in this loess at the same time that soils formed in glacial material or shortly thereafter.

Processes of Soil Formation

Several processes have been involved in the formation of the soils in Fountain County. These processes are the accumulation of organic matter; the dissolution, transfer, and removal of calcium carbonates and bases; the liberation and translocation of silicate clay minerals; and the reduction and transfer of iron. In most of the soils in the county, more than one of these processes have helped to differentiate soil horizons (Ruhe, 1956; Stevenson, 1982).

Some organic matter has accumulated in the surface layer of all the soils in the county. The content of organic matter in many of the soils is low or moderately low.

Carbonates and bases have been leached from the upper horizons of many of the soils in the county. Leaching probably preceded the translocation of silicate clay minerals. Almost all of the carbonates and some of the bases have been leached from the A and B horizons of the well drained soils. Even in the wettest soils, some leaching is indicated by the absence of carbonates and by an acid soil reaction. Leaching of wet soils is slow because of a seasonal high water table or the slow movement of water through the profile.

Clay accumulates in pores and other voids and forms films on the surfaces along which water moves. The leaching of bases and the translocation of silicate clays are among the more important processes affecting horizon differentiation in the soils. Crosby soils are examples of soils in which translocated silicate clays have accumulated in the Bt horizon in the form of clay films. Gleying, or the reduction and transfer of iron, has occurred in all of the very poorly drained to somewhat poorly drained soils in the county. This process has had a significant effect on horizon differentiation in these naturally wet soils. A gray subsoil indicates the reduction of iron oxides. This reduction is commonly accompanied by some transfer of the iron from the upper horizons to the lower ones or completely out of the profile. Redoximorphic concentrations in some horizons indicate the segregation of iron.

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.

Cowardin, L.M., and others. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric Soils of the United States.

Federal Register. February 24, 1995. Hydric soils of the United States.

Gann, R.W., and R. Liles. 1998-1999. Indiana agricultural statistics, 1998-1999. Indiana Agricultural Statistics Service, Purdue University.

Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. 1996. Field indicators of hydric soils in the United States.

Jenny, Hans. 1941. Factors of soil formation.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Ruhe, Robert V. 1956. Geomorphic surfaces and the nature of soils. Soil Science 82: 441-455.

Stevenson, F.J. 1982. Humus chemistry: Genesis, composition, reactions.

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

United States Department of Agriculture. 1966. Soil Survey of Fountain County, Indiana. Soil Conservation Service.

United States Department of Agriculture. 1993. Soil survey manual. Soil Conservation Service, Soil Survey Division Staff. U.S. Department of Agriculture Handbook 18.

United States Department of Agriculture. 1998. Keys to Soil Taxonomy. Eighth Edition. Natural Resources Conservation Service, Soil Survey Staff.

United States Department of Agriculture. 1999. Soil Taxonomy: A basic system of soil classification for making and interpreting soil surveys. Natural Resources Conservation Service, Soil Survey Staff. U.S. Department of Agriculture Handbook 436.

United States Department of Commerce, Bureau of the Census. 1990. 1990 census of population and housing. CPH-L-81, table 1.

Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

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.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp. An extensive marshy or swampy depression on flood plains between natural levees and valley sides or terraces.

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.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks. The steep and very steep broken land at the border of an upland summit that is dissected by ravines.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

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.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

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.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

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.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head out. To form a flower head.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. An irregular, short ridge or hill of stratified glacial drift.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

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.)

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

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.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

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.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments 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.

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 mainly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. The slope classes in this survey are as follows:

Level	0 to 1 percent
Nearly level	0 to 2 percent
Very gently sloping	2 to 4 percent
Gently sloping	2 to 6 percent
Moderately sloping	6 to 12 percent
Strongly sloping	12 to 18 percent
Moderately steep	18 to 25 percent
Steep	25 to 35 percent
Very steep	35 percent and higher

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A stream terrace that formed as an erosional surface cut on bedrock; thinly mantled with stream deposits (alluvium).

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 grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

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.

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 West Lafayette, Indiana)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
January-----	30.7	13.9	22.3	60	-16	10	1.69	0.60	2.59	3	6.3
February----	35.0	16.9	26.0	62	-11	17	1.41	0.56	2.13	3	6.1
March-------	47.3	28.8	38.1	77	3	111	2.75	1.50	3.86	6	2.5
April-------	60.4	39.3	49.8	84	20	317	3.71	2.21	5.06	7	0.7
May---------	71.7	49.8	60.7	90	29	643	3.89	2.05	5.50	7	0.0
June--------	81.0	58.9	70.0	94	41	899	3.71	1.85	5.32	6	0.0
July--------	84.3	62.5	73.4	97	45	1035	3.95	2.22	5.49	6	0.0
August------	82.0	59.9	71.0	94	41	960	3.84	2.09	5.37	5	0.0
September---	76.6	53.2	64.9	92	34	748	3.01	1.47	4.53	5	0.0
October-----	64.4	41.4	52.9	85	22	409	2.70	1.45	3.79	5	0.2
November----	50.2	32.3	41.3	75	13	141	2.94	1.63	4.10	5	1.2
December----	36.4	20.4	28.4	64	-9	28	2.61	1.05	3.93	5	5.3
Yearly:											
Average---	60.0	39.8	49.9	---	---	---	---	---	---	---	---
Extreme---	103	-24	---	97	-18	---	---	---	---	---	---
Total-----	---	---	---	---	---	5,318	36.21	18.68	51.67	63	22.3

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at West Lafayette, Indiana)

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-----	April 16	April 30	May 17
2 years in 10 later than-----	April 11	April 25	May 11
5 years in 10 later than-----	April 2	April 16	April 30
First freezing temperature in fall:			
1 year in 10 earlier than---	October 18	October 7	September 28
2 years in 10 earlier than---	October 23	October 13	October 2
5 years in 10 earlier than---	November 3	October 23	October 11

Table 3.--Growing Season

(Recorded for the period 1961-90 at West Lafayette, Indiana)

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	194	165	142
8 years in 10	201	174	149
5 years in 10	214	189	163
2 years in 10	228	205	177
1 year in 10	234	213	184

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AbfA	Adeland silt loam, 0 to 2 percent slopes	421	0.2
AbhAI	Adrian muck, 0 to 1 percent slopes, frequently flooded, long duration	165	*
AjaAI	Allison silt loam, 0 to 2 percent slopes, frequently flooded, long duration	1,454	0.6
ApkA	Angatoka silt loam, outwash substratum, 0 to 2 percent slopes	567	0.2
AplA	Angatoka silt loam, 0 to 2 percent slopes	210	*
AplB2	Angatoka silt loam, 2 to 6 percent slopes, eroded	4,843	1.9
AplC2	Angatoka silt loam, 6 to 12 percent slopes, eroded	2,355	0.9
AzqA	Ayrshire loam, 0 to 2 percent slopes	220	*
BcgAI	Battleground silt loam, 0 to 2 percent slopes, frequently flooded, long duration	3,458	1.4
BhyA	Birkbeck silt loam, 0 to 2 percent slopes	641	0.3
BhyB2	Birkbeck silt loam, 2 to 6 percent slopes, eroded	2,485	1.0
BvlAK	Brouillett silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration	2,377	0.9
CbaA	Camden silt loam, 0 to 2 percent slopes	573	0.2
CbaB2	Camden silt loam, 2 to 6 percent slopes, eroded	573	0.2
CfrG	Cates channery silt loam, 25 to 75 percent slopes	217	*
ChqA	Chalmers silty clay loam, 0 to 1 percent slopes	2,253	0.9
CnaB	Coloma loamy sand, 2 to 6 percent slopes	288	0.1
CnaC	Coloma loamy sand, 6 to 15 percent slopes	306	0.1
CsuA	Crane silt loam, 0 to 2 percent slopes	144	*
CudA	Crosby silt loam, 0 to 2 percent slopes	5,647	2.2
DpbA	Drummer silty clay loam, 0 to 1 percent slopes	2,711	1.1
EcoA	Edwardsville silt loam, 0 to 2 percent slopes	3,400	1.3
EdeAK	Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, brief duration	5,257	2.1
EmdA	Elston sandy loam, 0 to 2 percent slopes	430	0.2
EmdB	Elston sandy loam, 2 to 6 percent slopes	178	*
FamB	Fairpoint gravelly clay loam, 0 to 6 percent slopes	9	*
FdbA	Fincastle silt loam, 0 to 2 percent slopes	21,746	8.5
FdbB	Fincastle silt loam, 2 to 4 percent slopes	470	0.2
FdnA	Fincastle-Starks complex, 0 to 2 percent slopes	1,820	0.7
GcaAK	Genesee soils, 0 to 2 percent slopes, occasionally flooded, brief duration	6,430	2.5
JcfG	Judyville fine sandy loam, 25 to 70 percent slopes	953	0.4
KnqD2	Kendallville silt loam, 12 to 18 percent slopes, eroded	370	0.1
LbrA	Lafayette silt loam, 0 to 2 percent slopes	4,469	1.8
LdxAK	Landes fine sandy loam, 0 to 2 percent slopes, occasionally flooded, brief duration	534	0.2
LfuAI	Lash fine sandy loam, 0 to 2 percent slopes, frequently flooded, long duration	984	0.4
LfzB2	Lauramie silt loam, 2 to 6 percent slopes, eroded	2,493	1.0
LugA	Loudonville silt loam, 0 to 2 percent slopes	576	0.2
LugB2	Loudonville silt loam, 2 to 6 percent slopes, eroded	1,066	0.4
LugC2	Londonville silt loam, 6 to 12 percent slopes, eroded	483	0.2
LuhC	Loudonville silt loam, 4 to 12 percent slopes, stony	467	0.2
MamA	Mahalasville silty clay loam, 0 to 1 percent slopes	2,687	1.1
MaoA	Mahalaland silty clay loam, 0 to 1 percent slopes	9,958	3.9
MapA	Mahalasville silty clay loam, bedrock substratum, 0 to 1 percent slopes	178	*
MecB2	Martinsville loam, 2 to 6 percent slopes, eroded	268	0.1
MjuA	Mellott silt loam, 0 to 2 percent slopes	89	*
MqlG	Minnehaha silt loam, 35 to 75 percent slopes	609	0.2
MrcA	Mitiwanga silt loam, 0 to 2 percent slopes	362	0.1
ObmB2	Octagon silt loam, 2 to 6 percent slopes, eroded	1,184	0.5
ObmC2	Octagon silt loam, 6 to 12 percent slopes, eroded	760	0.3
ObxA	Ockley silt loam, 0 to 2 percent slopes	3,721	1.5
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded	4,697	1.8
ObxC2	Ockley silt loam, 6 to 12 percent slopes, eroded	2,301	0.9
ObxD2	Ockley silt loam, 12 to 18 percent slopes, eroded	536	0.2
Pg	Pits, gravel	831	0.3
PgaA	Pella silty clay loam, 0 to 1 percent slopes	1,007	0.4
PnwBQ	Pinevillage gravelly sandy loam, 2 to 8 percent slopes, rarely flooded	17	*
PvsA	Princeton fine sandy loam, 0 to 2 percent slopes	474	0.2
PvsB2	Princeton fine sandy loam, 2 to 6 percent slopes, eroded	709	0.3
PvsC2	Princeton fine sandy loam, 6 to 12 percent slopes, eroded	411	0.2
RbfA	Ragsdale silty clay loam, 0 to 1 percent slopes	13,997	5.5
RbuB2	Rainsville silt loam, 2 to 6 percent slopes, eroded	1,179	0.5

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
RbuC2	Rainsville silt loam, 6 to 12 percent slopes, eroded	712	0.3
RdvA	Raub silt loam, 0 to 2 percent slopes	1,351	0.5
RetA	Rensselaer silty clay loam, 0 to 1 percent slopes	1,110	0.4
RosAK	Rockmill silt loam, 0 to 1 percent slopes, occasionally flooded, brief duration	95	*
RqaE	Rodman sandy loam, 18 to 25 percent slopes	638	0.3
RqaG	Rodman sandy loam, 25 to 50 percent slopes	1,569	0.6
RtxAK	Rossburg silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration	1,149	0.5
RuxA	Raub-Brenton complex, 0 to 2 percent slopes	1,727	0.7
RyfA	Rush silt loam, 0 to 2 percent slopes	2,080	0.8
RyfB2	Rush silt loam, 2 to 6 percent slopes, eroded	1,247	0.5
RywB2	Russell silt loam, 2 to 6 percent slopes, eroded	10,164	4.0
RywC2	Russell silt loam, 6 to 12 percent slopes, eroded	5,477	2.1
RywD2	Russell silt loam, 12 to 18 percent slopes, eroded	1,665	0.7
RzcE	Russell-Strawn complex, 18 to 25 percent slopes	354	0.1
SldAK	Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration	1,225	0.5
SlyA	Silverwood silt loam, 0 to 2 percent slopes	1,334	0.5
SlyB2	Silverwood silt loam, 2 to 6 percent slopes, eroded	865	0.3
SlzA	Silverwood loam, 0 to 2 percent slopes	2,346	0.9
SlzB2	Silverwood loam, 2 to 6 percent slopes, eroded	1,804	0.7
SlzC2	Silverwood loam, 6 to 12 percent slopes, eroded	1,006	0.4
SlzD2	Silverwood loam, 12 to 18 percent slopes, eroded	393	0.2
SngA	Sleeth silt loam, 0 to 2 percent slopes	1,623	0.6
SnlAP	Southwest silt loam, 0 to 1 percent slopes, ponded, brief duration	201	*
SobAI	Sloan and Beaucoup soils, 0 to 1 percent slopes, frequently flooded, long duration	2,032	0.8
SseB2	St. Charles silt loam, 2 to 6 percent slopes, eroded	39	*
SteA	Starks silt loam, 0 to 2 percent slopes	1,864	0.7
SvqE	Strawn loam, 18 to 25 percent slopes	452	0.2
SvqG	Strawn loam, 25 to 70 percent slopes	4,715	1.9
SwdE	Strawn-Rodman complex, 18 to 25 percent slopes	246	*
SwdG	Strawn-Rodman complex, 25 to 50 percent slopes	2,837	1.1
TfdA	Throckmorton silt loam, 0 to 2 percent slopes	1,132	0.4
TfdB	Throckmorton silt loam, 2 to 4 percent slopes	438	0.2
ThrA	Treaty silty clay loam, 0 to 1 percent slopes	16,670	6.5
TlxA	Toronto silt loam, 0 to 2 percent slopes	1,765	0.7
TmcA	Totanang silt loam, 0 to 2 percent slopes	1,053	0.4
UbyE	Udorthents, loamy, 3 to 30 percent slopes	381	0.1
Uea	Urban land	164	*
WkmA	Waupecan silt loam, 0 to 2 percent slopes	6,369	2.5
WkmB2	Waupecan silt loam, 2 to 6 percent slopes, eroded	2,386	0.9
WmnA	Waynetown silt loam, 0 to 2 percent slopes	6,715	2.6
WmpA	Wea loam, 0 to 2 percent slopes	1,287	0.5
WmpB2	Wea loam, 2 to 6 percent slopes, eroded	406	0.2
WqvA	Westland silty clay loam, 0 to 1 percent slopes	2,879	1.1
WsuA	Whitaker loam, 0 to 2 percent slopes	442	0.2
WtaA	Whitaker silt loam, 0 to 2 percent slopes	214	*
WufB2	Williamstown silt loam, 2 to 6 percent slopes, eroded	514	0.2
WvaA	Wingate silt loam,0 to 2 percent slopes	286	0.1
WvaB2	Wingate silt loam, 2 to 6 percent slopes, eroded	454	0.2
XabA	Xenia silt loam, 0 to 2 percent slopes	559	0.2
XabB2	Xenia silt loam, 2 to 6 percent slopes, eroded	3,910	1.5
XfuB2	Miami-Rainsville complex, 2 to 6 percent slopes, eroded	3,093	1.2
XfuC2	Miami-Rainsville complex, 6 to 12 percent slopes, eroded	1,899	0.7
YedA	Yeddo silt loam, 0 to 2 percent slopes	17,527	6.9
	Water	1,896	0.7
	Total	254,777	100.0

* Less than 0.1 percent.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture

(See text for a description of the limitations and hazards listed in this table.)

Soil name and map symbol	Limitations and hazards
AbfA:	
Adeland	Wetness, limited rooting depth, crusting, moderate available water capacity, restricted permeability.
AbhAI:	
Adrian	Generally unsuited to cropland and pasture: flooding, ponding, wetness, wind erosion.
AjaAI:	
Allison	Flooding.
ApkA:	
Angatoka	Low pH, crusting.
AplA:	
Angatoka	Low pH, crusting.
AplB2:	
Angatoka	Low pH, crusting, water erosion.
AplC2:	
Angatoka	Low pH, crusting, water erosion.
AzqA:	
Ayrshire	Wetness.
BcgAI:	
Battleground	Flooding, high pH.
BhyA:	
Birkbeck	Crusting.
BhyB2:	
Birkbeck	Crusting, water erosion.
BvlAK:	
Brouillett	Flooding, wetness.
CbaA:	
Camden	Crusting.
CbaB2:	
Camden	Crusting, water erosion.
CfrG:	
Cates	Unsuited to cropland and pasture: equipment limitation, limited rooting depth, low pH, water erosion, low available water capacity.
ChqA:	
Chalmers	Wetness, ponding.
CnaB:	
Coloma	Low pH, wind erosion, low available water capacity.
CnaC:	
Coloma	Low pH, wind erosion, low available water capacity.
CsuA:	
Crane	Wetness.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards
CudA:	
Crosby	Wetness, limited rooting depth, restricted permeability, crusting, moderate available water capacity.
DpbA:	
Drummer	Wetness, ponding, poor tilth.
EcoA:	
Edwardsville	Wetness.
EdeAK:	
Eel	Flooding, crusting.
Beckville	Flooding.
EmdA:	
Elston	Wind erosion, moderate available water capacity.
EmdB:	
Elston	Water erosion, wind erosion, moderate available water capacity.
FamB:	
Fairpoint	Equipment limitation, crusting, low available water capacity, water erosion.
FdbA:	
Fincastle	Wetness, crusting.
FdbB:	
Fincastle	Wetness, crusting, water erosion.
FdnA:	
Fincastle	Wetness, crusting.
Starks	Wetness, crusting.
GcaAK:	
Genesee	Flooding, high pH, crusting.
JcfG:	
Judyville	Unsuited to cropland and pasture: equipment limitation, limited rooting depth, low pH, water erosion, wind erosion, low available water capacity.
KnqD2:	
Kendallville	Equipment limitation, limited rooting depth, restricted permeability, crusting, moderate available water capacity, water erosion.
LbrA:	
Lafayette	Wetness.
LdxAK:	
Landes	Flooding, moderate available water capacity.
LfuAI:	
Lash	Flooding, moderate available water capacity, high pH.
LfzB2:	
Lauramie	Water erosion.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards
LugA:	
Loudonville	Limited rooting depth, low pH, moderate available water capacity.
LugB2:	
Loudonville	Limited rooting depth, low pH, water erosion, moderate available water capacity.
LugC2:	
Loudonville	Limited rooting depth, low pH, water erosion, moderate available water capacity.
LuhC:	
Loudonville	Equipment limitation, limited rooting depth, low pH, water erosion, wind erosion, low available water capacity.
MamA:	
Mahalasville	Wetness, ponding.
MaoA:	
Mahalaland	Wetness, ponding.
MapA:	
Mahalasville	Wetness, ponding.
MecB2:	
Martinsville	Crusting, water erosion.
MjuA:	
Mellott	Low pH.
MqlG:	
Minnehaha	Unsuited to cropland and pasture: equipment limitation, water erosion, low available water capacity.
MrcA:	
Mitiwanga	Wetness, limited rooting depth, crusting, low pH, moderate available water capacity.
ObmB2:	
Octagon	Water erosion, limited rooting depth, restricted permeability, moderate available water capacity.
ObmC2:	
Octagon	Water erosion, limited rooting depth, restricted permeability, moderate available water capacity.
ObxA:	
Ockley	Crusting.
ObxB2:	
Ockley	Crusting, water erosion.
ObxC2:	
Ockley	Crusting, water erosion.
ObxD2:	
Ockley	Equipment limitation, crusting, water erosion.
Pg:	
Pits, gravel	Unsuited.
PgaA:	
Pella	Wetness, ponding.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards
PnwBQ:	
Pinevillage	Equipment limitation, high pH, water erosion, low available water capacity.
PvsA:	
Princeton	Wind erosion.
PvsB2:	
Princeton	Water erosion, wind erosion.
PvsC2:	
Princeton	Water erosion, wind erosion.
RbfA:	
Ragsdale	Wetness, ponding.
RbuB2:	
Rainsville	Crusting, water erosion.
RbuC2:	
Rainsville	Crusting, water erosion, moderate available water capacity.
RdvA:	
Raub	Wetness.
RetA:	
Rensselaer	Wetness, ponding.
RosAK:	
Rockmill	Flooding, wetness, ponding.
RqaE:	
Rodman	Generally unsuited to cropland and improved pasture: equipment limitation, water erosion, low available water capacity, limited rooting depth.
RqaG:	
Rodman	Unsuited to cropland and pasture: equipment limitation, water erosion, low available water capacity, limited rooting depth.
RtxAK:	
Rossburg	Flooding.
RuxA:	
Raub	Wetness.
Brenton	Wetness.
RyfA:	
Rush	Crusting.
RyfB2:	
Rush	Crusting, water erosion.
RywB2:	
Russell	Crusting, water erosion.
RywC2:	
Russell	Crusting, water erosion.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards
RywD2:	
Russell	Equipment limitation, crusting, water erosion.
RzcE:	
Russell	Generally unsuited to cropland and improved pasture: equipment limitation, crusting, water erosion.
Strawn	Generally unsuted to cropland and improved pasture: equipment limitation, crusting,water erosion, low available water capacity, restricted permeability.
SldAK:	
Shoals	Flooding, wetness.
SlyA:	
Silverwood	Crusting, moderate available water capacity.
SlyB2:	
Silverwood	Water erosion, crusting, moderate available water capacity.
SlzA:	
Silverwood	Crusting, moderate available water capacity.
SlzB2:	
Silverwood	Water erosion, crusting, moderate available water capacity.
SlzC2:	
Silverwood	Water erosion, crusting, low available water capacity.
SlzD2:	
Silverwood	Equipment limitation, water erosion, crusting, low available water capacity.
SngA:	
Sleeth	Wetness, crusting.
SnlAP:	
Southwest	Ponding, wetness, crusting.
SobAI:	
Sloan	Flooding, wetness, poor tilth.
Beaucoup	Flooding, wetness.
SseB2:	
St. Charles	Water erosion, crusting.
SteA:	
Starks	Wetness, crusting.
SvqE:	
Strawn	Generally unsuited to cropland and improved pasture: equipment limitation, crusting, water erosion, low available water capacity, restricted permeability.
SvqG:	
Strawn	Unsuited to cropland and improved pasture: equipment limitation, crusting, water erosion, low available water capacity, restricted permeability.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards
SwdE:	
Strawn	Generally unsuited to cropland and improved pasture: equipment limitation, crusting, water erosion, low available water capacity, restricted permeability.
Rodman	Generally unsuited to cropland and improved pasture: equipment limitation, water erosion, low available water capacity, limited rooting depth.
SwdG:	
Strawn	Unsuited to cropland and improved pasture: equipment limitation, crusting, water erosion, low available water capacity, restricted permeability.
Rodman	Unsuited to cropland and improved pasture: equipment limitation, water erosion, low available water capacity, limited rooting depth.
TfdA:	
Throckmorton	No limitations.
TfdB:	
Throckmorton	Water erosion.
ThrA:	
Treaty	Wetness, ponding.
TlxA:	
Toronto	Wetness.
TmcA:	
Totanang	No limitations.
UbyE:	
Udorthents	Generally unsuited to cropland and improved pasture: equipment limitation.
Uea:	
Urban land	Built-up land.
WkmA:	
Waupecan	No limitations.
WkmB2:	
Waupecan	Water erosion.
WmnA:	
Waynetown	Wetness, crusting.
WmpA:	
Wea	No limitations.
WmpB2:	
Wea	Water erosion.
WqvA:	
Westland	Wetness, ponding.
WsuA:	
Whitaker	Wetness, crusting.

Table 5.--Main Limitations and Hazards Affecting Cropland and Pasture--Continued

Soil name and map symbol	Limitations and hazards
WtaA:	
Whitaker	Wetness, crusting.
WufB2:	
Williamstown	Crusting, water erosion, moderate available water capacity, limited rooting depth, restricted permeability.
WvaA:	
Wingate	No limitations.
WvaB2:	
Wingate	Water erosion.
XabA:	
Xenia	Crusting.
XabB2:	
Xenia	Crusting, water erosion.
XfuB2:	
Miami	Crusting, water erosion, moderate available water capacity, limited rooting depth, restricted permeability.
Rainsville	Crusting, water erosion.
XfuC2:	
Miami	Crusting, water erosion, moderate available water capacity, limited rooting depth, restricted permeability.
Rainsville	Crusting, water erosion, moderate available water capacity.
YedA:	
Yeddo	Wetness, crusting.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of nonirrigated management and are a mean value of the major soil components within the map unit. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM**
AbfA:						
Adeland-------------	2w	85	30	34	2.8	5.6
AbhAI:						
Adrian--------------	5w	---	---	---	---	---
AjaAI:						
Allison-------------	2w	140	49	---	4.6	9.2
ApkA:						
Angatoka------------	1	120	42	48	4.0	8.0
AplA:						
Angatoka------------	1	120	42	48	4.0	8.0
AplB2:						
Angatoka------------	2e	115	40	46	3.8	7.6
AplC2:						
Angatoka------------	3e	105	37	42	3.5	7.0
AzqA:						
Ayrshire------------	2w	115	40	46	3.8	7.6
BcgAI:						
Battleground--------	2w	125	44	---	4.1	8.2
BhyA:						
Birkbeck------------	1	125	44	50	4.1	8.2
BhyB2:						
Birkbeck------------	2e	120	42	48	4.0	8.0
BvlAK:						
Brouillett----------	2w	145	50	58	4.8	9.6
CbaA:						
Camden--------------	1	125	44	50	4.1	8.2
CbaB2:						
Camden--------------	2e	120	42	48	4.0	8.0
CfrG:						
Cates---------------	7e	---	---	---	---	---
ChqA:						
Chalmers------------	2w	150	53	60	5.0	10.0
CnaB:						
Coloma--------------	3s	55	16	18	1.5	3.0
CnaC:						
Coloma--------------	4s	45	9	11	0.9	1.8
CsuA:						
Crane---------------	2w	120	42	48	4.0	8.0

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM**
CudA:						
Crosby--------------	2w	105	37	42	3.5	7.0
DpbA:						
Drummer-------------	2w	155	54	62	5.1	10.2
EcoA:						
Edwardsville--------	1	145	50	58	4.8	9.6
EdeAK:						
Eel and Beckville---	2w	115	40	46	3.8	7.6
EmdA:						
Elston--------------	2s	90	32	36	3.0	6.0
EmdB:						
Elston--------------	2e	90	32	36	3.0	6.0
FamB:						
Fairpoint-----------	3e	65	23	26	2.2	4.4
FdbA:						
Fincastle-----------	2w	130	46	52	4.3	8.6
FdbB:						
Fincastle-----------	2e	130	46	52	4.3	8.6
FdnA:						
Fincastle-Starks----	2w	132	46	53	4.4	8.8
GcaAK:						
Genesee-------------	2w	120	42	48	4.0	8.0
JcfG:						
Judyville-----------	7e	---	---	---	---	---
KnqD2:						
Kendallville--------	4e	80	28	32	2.6	5.2
LbrA:						
Lafayette-----------	2w	140	49	56	4.6	9.2
LdxAK:						
Landes--------------	3w	100	35	40	3.3	6.6
LfuAI:						
Lash----------------	2w	95	33	---	3.1	6.2
LfzB2:						
Lauramie------------	2e	120	42	48	4.0	8.0
LugA:						
Loudonville---------	2s	90	32	36	3.0	6.0
LugB2:						
Loudonville---------	2e	85	30	34	2.8	5.6
LugC2:						
Loudonville---------	3e	75	26	30	2.5	5.0

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM**
LuhC:						
Loudonville---------	6e	---	---	---	---	2.6
MamA:						
Mahalasville--------	2w	155	54	62	5.1	10.2
MaoA:						
Mahalaland----------	2w	145	50	58	4.8	9.6
MapA:						
Mahalasville, bedrock substratum	2w	150	53	60	5.0	10.0
MecB2:						
Martinsville--------	2e	115	40	46	3.8	7.6
MjuA:						
Mellott-------------	1	125	44	50	4.1	8.2
MqlG:						
Minnehaha-----------	7e	---	---	---	---	---
MrcA:						
Mitiwanga-----------	2w	90	32	36	3.0	6.0
ObmB2:						
Octagon-------------	2e	110	39	44	3.6	7.2
ObmC2:						
Octagon-------------	3e	100	35	40	3.3	6.6
ObxA:						
Ockley--------------	1	110	39	44	3.6	7.2
ObxB2:						
Ockley--------------	2e	105	37	42	3.5	7.0
ObxC2:						
Ockley--------------	3e	95	33	38	3.1	6.2
ObxD2:						
Ockley--------------	4e	80	28	32	2.6	5.2
Pg:						
Pits, gravel.						
PgaA:						
Pella---------------	4w	60	21	24	2.0	4.0
PnwBQ:						
Pinevillage---------	3e	85	30	34	2.8	5.6
PvsA:						
Princeton-----------	1	100	35	40	3.3	6.6
PvsB2:						
Princeton-----------	2e	95	33	38	3.1	6.2
PvsC2:						
Princeton-----------	3e	85	30	34	2.8	5.6

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM**
RbfA:						
Ragsdale------------	2w	155	54	62	5.1	10.2
RbuB2:						
Rainsville----------	2e	115	40	46	3.8	7.6
RbuC2:						
Rainsville----------	3e	105	37	42	3.5	7.0
RdvA:						
Raub----------------	2w	140	49	56	4.6	9.2
RetA:						
Rensselaer----------	2w	150	53	60	5.0	10.0
RosAK:						
Rockmill------------	3w	100	35	40	3.3	6.6
RqaE:						
Rodman--------------	6e	---	---	---	---	---
RqaG:						
Rodman--------------	7e	---	---	---	---	---
RtxAK:						
Rossburg------------	2w	135	47	54	4.5	9.0
RuxA:						
Raub-Brenton--------	2w	140	49	56	4.6	9.2
RyfA:						
Rush----------------	1	125	44	50	4.1	8.2
RyfB2:						
Rush----------------	2e	120	42	48	4.0	8.0
RywB2:						
Russell-------------	2e	115	40	46	3.8	7.6
RywC2:						
Russell-------------	3e	105	37	42	3.5	7.0
RywD2:						
Russell-------------	4e	90	32	36	3.0	6.0
RzcE:						
Russell-Strawn------	6e	---	---	---	2.1	4.2
SldAK:						
Shoals--------------	2w	130	46	52	4.3	8.6
SlyA:						
Silverwood----------	2s	80	28	32	2.6	5.2
SlyB2:						
Silverwood----------	2e	75	26	30	2.5	5.0
SlzA:						
Silverwood----------	2s	80	28	32	2.6	5.2

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM**
SlzB2:						
Silverwood----------	2e	75	26	30	2.5	5.0
SlzC2:						
Silverwood----------	3e	65	23	26	2.2	4.4
SlzD2:						
Silverwood----------	4e	50	18	20	1.7	3.4
SngA:						
Sleeth--------------	2w	120	42	48	4.0	8.0
SnlAP:						
Southwest-----------	3w	120	42	48	4.0	8.0
SobAI:						
Sloan and Beaucoup--	3w	140	49	---	4.6	9.2
SseB2:						
St. Charles---------	2e	125	44	50	4.1	8.2
SteA:						
Starks--------------	2w	135	47	54	4.5	9.0
SvqE:						
Strawn--------------	6e	---	---	---	1.7	3.4
SvqG:						
Strawn--------------	7e	---	---	---	---	---
SwdE:						
Strawn-Rodman-------	6e	---	---	---	0.9	1.8
SwdG:						
Strawn-Rodman-------	7e	---	---	---	---	---
TfdA:						
Throckmorton--------	1	125	44	50	4.1	8.2
TfdB:						
Throckmorton--------	2e	125	44	50	4.1	8.2
ThrA:						
Treaty--------------	2w	150	53	60	5.0	10.0
TlxA:						
Toronto-------------	2w	135	47	54	4.5	9.0
TmcA:						
Totanang------------	1	135	47	54	4.5	9.0
UbyE:						
Udorthents.						
Uea:						
Urban land.						
WkmA:						
Waupecan------------	1	135	47	54	4.5	9.0

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Winter wheat	Grass-legume hay	Pasture
		Bu	*Bu*	*Bu*	*Tons*	*AUM**
WkmB2:						
Waupecan------------	2e	130	46	52	4.3	8.6
WmnA:						
Waynetown-----------	2w	125	44	50	4.1	8.2
WmpA:						
Wea-----------------	2s	115	40	46	3.8	7.6
WmpB2:						
Wea-----------------	2e	110	39	44	3.6	7.2
WqvA:						
Westland------------	2w	140	49	56	4.6	9.2
WsuA:						
Whitaker------------	2w	130	46	52	4.3	8.6
WtaA:						
Whitaker------------	2w	130	46	52	4.3	8.6
WufB2:						
Williamstown--------	2e	105	37	42	3.5	7.0
WvaA:						
Wingate-------------	1	125	44	50	4.1	8.2
WvaB2:						
Wingate-------------	2e	120	42	48	4.0	8.0
XabA:						
Xenia---------------	1	120	42	48	4.0	8.0
XabB2:						
Xenia---------------	2e	115	40	46	3.8	7.6
XfuB2:						
Miami-Rainsville----	2e	110	39	44	3.6	7.2
XfuC2:						
Miami-Rainsville----	3e	100	35	40	3.3	6.6
YedA:						
Yeddo---------------	2w	135	47	54	4.5	9.0

* 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 7.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
AbfA	Adeland silt loam, 0 to 2 percent slopes (where drained)
AjaAI	Allison silt loam, 0 to 2 percent slopes, frequently flooded, long duration (where protected from flooding or not frequently flooded during the growing season)
ApkA	Angatoka silt loam, outwash substratum, 0 to 2 percent slopes
AplA	Angatoka silt loam, 0 to 2 percent slopes
AplB2	Angatoka silt loam, 2 to 6 percent slopes, eroded
AzqA	Ayrshire loam, 0 to 2 percent slopes (where drained)
BcgAI	Battleground silt loam, 0 to 2 percent slopes, frequently flooded, long duration (where protected from flooding or not frequently flooded during the growing season)
BhyA	Birkbeck silt loam, 0 to 2 percent slopes
BhyB2	Birkbeck silt loam, 2 to 6 percent slopes, eroded
BvlAK	Brouillett silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration (where drained)
CbaA	Camden silt loam, 0 to 2 percent slopes
CbaB2	Camden silt loam, 2 to 6 percent slopes, eroded
ChqA	Chalmers silty clay loam, 0 to 1 percent slopes (where drained)
CsuA	Crane silt loam, 0 to 2 percent slopes (where drained)
CudA	Crosby silt loam, 0 to 2 percent slopes (where drained)
DpbA	Drummer silty clay loam, 0 to 1 percent slopes (where drained)
EcoA	Edwardsville silt loam, 0 to 2 percent slopes (where drained)
EdeAK	Eel and Beckville soils, 0 to 2 percent slopes, occasionally flooded, brief duration
EmdA	Elston sandy loam, 0 to 2 percent slopes
EmdB	Elston sandy loam, 2 to 6 percent slopes
FdbA	Fincastle silt loam, 0 to 2 percent slopes (where drained)
FdbB	Fincastle silt loam, 2 to 4 percent slopes (where drained)
FdnA	Fincastle-Starks complex, 0 to 2 percent slopes (where drained)
GcaAK	Genesee soils, 0 to 2 percent slopes, occasionally flooded, brief duration
LbrA	Lafayette silt loam, 0 to 2 percent slopes (where drained)
LdxAK	Landes fine sandy loam, 0 to 2 percent slopes, occasionally flooded, brief duration
LfuAI	Lash fine sandy loam, 0 to 2 percent slopes, frequently flooded, long duration (where protected from flooding or not frequently flooded during the growing season)
LfzB2	Lauramie silt loam, 2 to 6 percent slopes, eroded
LugA	Loudonville silt loam, 0 to 2 percent slopes
LugB2	Loudonville silt loam, 2 to 6 percent slopes, eroded
MamA	Mahalasville silty clay loam, 0 to 1 percent slopes (where drained)
MaoA	Mahalaland silty clay loam, 0 to 1 percent slopes (where drained)
MapA	Mahalasville silty clay loam, bedrock substratum, 0 to 1 percent slopes (where drained)
MecB2	Martinsville loam, 2 to 6 percent slopes, eroded
MjuA	Mellott silt loam, 0 to 2 percent slopes
MrcA	Mitiwanga silt loam, 0 to 2 percent slopes (where drained)
ObmB2	Octagon silt loam, 2 to 6 percent slopes, eroded
ObxA	Ockley silt loam, 0 to 2 percent slopes
ObxB2	Ockley silt loam, 2 to 6 percent slopes, eroded
PvsA	Princeton fine sandy loam, 0 to 2 percent slopes
PvsB2	Princeton fine sandy loam, 2 to 6 percent slopes, eroded
RbfA	Ragsdale silty clay loam, 0 to 1 percent slopes (where drained)
RbuB2	Rainsville silt loam, 2 to 6 percent slopes, eroded
RdvA	Raub silt loam, 0 to 2 percent slopes (where drained)
RetA	Rensselaer silty clay loam, 0 to 1 percent slopes (where drained)
RtxAK	Rossburg silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration
RuxA	Raub-Brenton complex, 0 to 2 percent slopes (where drained)
RyfA	Rush silt loam, 0 to 2 percent slopes
RyfB2	Rush silt loam, 2 to 6 percent slopes, eroded
RywB2	Russell silt loam, 2 to 6 percent slopes, eroded
SldAK	Shoals silt loam, 0 to 2 percent slopes, occasionally flooded, brief duration (where drained)
SlyA	Silverwood silt loam, 0 to 2 percent slopes
SlyB2	Silverwood silt loam, 2 to 6 percent slopes, eroded
SlzA	Silverwood loam, 0 to 2 percent slopes

Table 7.--Prime Farmland--Continued

Map symbol	Soil name
SlzB2	Silverwood loam, 2 to 6 percent slopes, eroded
SngA	Sleeth silt loam, 0 to 2 percent slopes (where drained)
SobAI	Sloan and Beaucoup soils, 0 to 1 percent slopes, frequently flooded, long duration (where drained and either protected from flooding or not frequently flooded during the growing season)
SseB2	St. Charles silt loam, 2 to 6 percent slopes, eroded
SteA	Starks silt loam, 0 to 2 percent slopes (where drained)
TfdA	Throckmorton silt loam, 0 to 2 percent slopes
TfdB	Throckmorton silt loam, 2 to 4 percent slopes
ThrA	Treaty silty clay loam, 0 to 1 percent slopes (where drained)
TlxA	Toronto silt loam, 0 to 2 percent slopes (where drained)
TmcA	Totanang silt loam, 0 to 2 percent slopes
WkmA	Waupecan silt loam, 0 to 2 percent slopes
WkmB2	Waupecan silt loam, 2 to 6 percent slopes, eroded
WmnA	Waynetown silt loam, 0 to 2 percent slopes (where drained)
WmpA	Wea loam, 0 to 2 percent slopes
WmpB2	Wea loam, 2 to 6 percent slopes, eroded
WqvA	Westland silty clay loam, 0 to 1 percent slopes (where drained)
WsuA	Whitaker loam, 0 to 2 percent slopes (where drained)
WtaA	Whitaker silt loam, 0 to 2 percent slopes (where drained)
WufB2	Williamstown silt loam, 2 to 6 percent slopes, eroded
WvaA	Wingate silt loam,0 to 2 percent slopes
WvaB2	Wingate silt loam, 2 to 6 percent slopes, eroded
XabA	Xenia silt loam, 0 to 2 percent slopes
XabB2	Xenia silt loam, 2 to 6 percent slopes, eroded
XfuB2	Miami-Rainsville complex, 2 to 6 percent slopes, eroded
YedA	Yeddo silt loam, 0 to 2 percent slopes (where drained)

Table 8.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height on the soil.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
AbfA: Adeland	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
AbhAI: Adrian	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Alternateleaf dogwood, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
AjaAI: Allison	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
ApkA: Angatoka	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
AplA: Angatoka	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
AplB2:					
Angatoka----------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
AplC2:					
Angatoka----------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
AzqA:					
Ayrshire----------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
BcgAI:					
Battleground------	Gray dogwood, redosier dogwood, silky dogwood.	Nannyberry, pawpaw, roughleaf dogwood.	Hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, black walnut, bur oak.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
BhyA:					
Birkbeck----------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
BhyB2:					
Birkbeck----------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
BvlAK:					
Brouillett--------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, pawpaw, roughleaf dogwood.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
CbaA:					
Camden------------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
CbaB2:					
Camden------------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
CfrG:					
Cates-------------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
ChqA: Chalmers	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
CnaB: Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.
CnaC: Coloma	American elder, common juniper, coralberry, highbush cranberry, silky dogwood.	Arrowwood, blackhaw, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	American plum, eastern redcedar, hackberry, serviceberry, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, red maple, red pine, river birch, silver maple.	Eastern cottonwood, imperial Carolina poplar.
CsuA: Crane	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
CudA: Crosby	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, blackgum, cherrybark oak, eastern white pine, green ash, Norway spruce, pecan, pin oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
DpbA:					
Drummer	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
EcoA:					
Edwardsville	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
EdeAK:					
Eel	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Beckville	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
EmdA:					
Elston	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.

Table 8.--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
EmdB:					
Elston	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
FamB:					
Fairpoint.					
FdbA:					
Fincastle	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, blackgum, bur oak, cherrybark oak, eastern white pine, green ash, Norway spruce, pecan, pin oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
FdbB:					
Fincastle	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
FdnA:					
Fincastle	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
FdnA:					
Starks------------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
GcaAK:					
Genesee-----------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
JcfG:					
Judyville---------	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
KnqD2:					
Kendallville------	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
LbrA:					
Lafayette---------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
LdxAK: Landes	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
LfuAI: Lash	Gray dogwood, redosier dogwood, silky dogwood.	Nannyberry, pawpaw, roughleaf dogwood.	Hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, black walnut, bur oak.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
LfzB2: Lauramie	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
LugA: Loudonville	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
LugB2: Loudonville	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
LugC2: Loudonville	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
LuhC: Loudonville	American elder, black chokeberry, common juniper, coralberry, highbush cranberry, silky dogwood.	Hazelnut, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Blackgum, bur oak, chinkapin oak, eastern white pine, green ash, Norway spruce, red pine, white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MamA: Mahalasville	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MaoA: Mahalaland	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MapA: Mahalasville, bedrock substratum	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
MecB2: Martinsville	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
MjuA: Mellott	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
MqlG: Minnehaha.					
MrcA: Mitiwanga	American elder, black chokeberry, common winterberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
ObmB2: Octagon	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
ObmC2: Octagon	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
ObxA: Ockley	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Baldcypress, black cherry, black walnut, blackgum, cherrybark oak, northern red oak, Norway spruce, pecan, pin oak, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
ObxB2: Ockley	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
ObxC2: Ockley	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
ObxD2: Ockley	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
Pg: Pits, gravel.					
PgaA: Pella	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
PnwBQ:					
Pinevillage	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
PvsA:					
Princeton	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
PvsB2:					
Princeton	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
PvsC2:					
Princeton	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
RbfA:					
Ragsdale	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
RbuB2:					
Rainsville	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
RbuC2:					
Rainsville	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
RdvA:					
Raub	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
RetA:					
Rensselaer	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
RosAK:					
Rockmill	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Alternateleaf dogwood, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
RqaE:					
Rodman	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
RqaG:					
Rodman	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
RtxAK:					
Rossburg	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, hazel alder, prairie crabapple, roughleaf dogwood, wild sweet crab.	Cockspur hawthorn, downy hawthorn, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
RuxA:					
Raub	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Brenton	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
RyfA:					
Rush	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
RyfB2:					
Rush	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
RywB2:					
Russell	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Baldcypress, black cherry, black walnut, blackgum, cherrybark oak, northern red oak, Norway spruce, pecan, pin oak, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
RywC2:					
Russell	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
RywD2:					
Russell	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
RzcE:					
Russell	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
SldAK:					
Shoals	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, pawpaw, roughleaf dogwood.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SlyA:					
Silverwood	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
SlyB2:					
Silverwood	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.

Table 8.--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
SlzA:					
Silverwood--------	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
SlzB2:					
Silverwood--------	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
SlzC2:					
Silverwood--------	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
SlzD2:					
Silverwood--------	American elder, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazel alder, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Black walnut, blackgum, bur oak, northern red oak, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree.
SngA:					
Sleeth------------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
SnlAP:					
Southwest	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SobAI:					
Sloan	American elder, black chokeberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, hackberry, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
Beaucoup	American elder, black chokeberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Downy hawthorn, hackberry, northern white-cedar.	Blackgum, bur oak, green ash, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
SseB2:					
St. Charles	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
SteA:					
Starks	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
SvqE:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
SvqG:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bitternut hickory, bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
SwdE:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
Rodman	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
SwdG:					
Strawn	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
Rodman	Gray dogwood, redosier dogwood, silky dogwood.	Blackhaw, common chokecherry, hazelnut, nannyberry, pawpaw, roughleaf dogwood.	Eastern redcedar, hackberry, northern white-cedar, Washington hawthorn.	Bur oak, chinkapin oak, white spruce.	American sycamore, eastern cottonwood, green ash, imperial Carolina poplar.
TfdA:					
Throckmorton	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
TfdB: Throckmorton------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
ThrA: Treaty------------	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
TlxA: Toronto-----------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
TmcA: Totanang----------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
UbyE: Udorthents, loamy.					
Uea: Urban land.					

Table 8.--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
WkmA:					
Waupecan----------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
WkmB2:					
Waupecan----------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
WmnA:					
Waynetown---------	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
WmpA:					
Wea---------------	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
WmpB2:					
Wea	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
WqvA:					
Westland	American elder, black chokeberry, buttonbush, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood.	Green hawthorn, hackberry, northern white-cedar, shingle oak.	Blackgum, bur oak, green ash, Norway spruce, pin oak, swamp white oak.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
WsuA:					
Whitaker	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Baldcypress, blackgum, bur oak, cherrybark oak, eastern white pine, green ash, Norway spruce, pecan, pin oak, Shumard's oak, swamp chestnut oak, swamp white oak, sweetgum, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.
WtaA:					
Whitaker	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
WufB2: Williamstown	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
WvaA: Wingate	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
WvaB2: Wingate	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.
XabA: Xenia	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
XabB2:					
Xenia	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Baldcypress, black cherry, black walnut, blackgum, cherrybark oak, northern red oak, Norway spruce, pecan, pin oak, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
XfuB2:					
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Rainsville	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, hackberry, northern white-cedar, prairie crabapple, serviceberry, Washington hawthorn.	Baldcypress, black cherry, black walnut, blackgum, cherrybark oak, northern red oak, Norway spruce, pecan, pin oak, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple, tuliptree, white ash.
XfuC2:					
Miami	American elder, black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, hazelnut, nannyberry, pawpaw, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab, witchhazel.	American plum, common persimmon, eastern redcedar, northern white-cedar, prairie crabapple, serviceberry, shingle oak, Washington hawthorn.	Black cherry, black walnut, blackgum, northern red oak, Norway spruce, pin oak, red pine, swamp white oak, tuliptree, white ash, white oak.	Eastern cottonwood, eastern white pine, green ash, imperial Carolina poplar, red maple, river birch, silver maple.
Rainsville	Black chokeberry, common juniper, coralberry, gray dogwood, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, hazelnut, nannyberry, prairie crabapple, roughleaf dogwood, shining sumac, smooth sumac, staghorn sumac, wild sweet crab.	American plum, eastern redcedar, hackberry, northern white-cedar, serviceberry, Washington hawthorn.	Black cherry, black walnut, blackgum, green ash, northern red oak, Norway spruce, pin oak, red pine, tuliptree, white ash.	Eastern cottonwood, eastern white pine, imperial Carolina poplar, red maple, river birch, silver maple.

Table 8.--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
YedA:					
Yeddo	American elder, black chokeberry, highbush cranberry, ninebark, redosier dogwood, silky dogwood, spicebush.	Arrowwood, blackhaw, cockspur hawthorn, hazel alder, nannyberry, pawpaw, prairie crabapple, roughleaf dogwood, witchhazel.	Common persimmon, eastern redcedar, hackberry, northern white-cedar, shingle oak, Washington hawthorn.	Blackgum, bur oak, eastern white pine, green ash, Norway spruce, pin oak, Shumard's oak, swamp white oak, white ash.	Eastern cottonwood, imperial Carolina poplar, red maple, river birch, silver maple.

Table 9.--Forestland Management and Productivity

(Only the soils suitable for production of commercial trees are rated. Absence of an entry indicates that information was not available.)

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Suggested trees to plant
AbfA:						
Adeland	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			American sycamore	---	---	
			Swamp white oak	---	---	
			Pin oak	---	---	
AbhAI:						
Adrian	Poorly suited: low strength, wetness. Moderate limitations: sandiness.	Slight	Pin oak	60	43	Baldcypress, bur oak, eastern cottonwood, green ash, red maple, river birch, silver maple, swamp white oak, tamarack.
			Red maple	51	29	
			Silver maple	76	29	
			River birch	45	29	
			Tamarack	45	29	
			Eastern cottonwood	86	86	
			Eastern arborvitae	27	43	
AjaAI:						
Allison	Moderately well suited: low strength.	Slight	Silver maple	70	29	Baldcypress, blackgum, bur oak, green ash, pin oak, red maple, shingle oak, swamp white oak.
			Red maple	---	---	
			White ash	---	---	
ApkA, AplA, AplB2, AplC2:						
Angatoka	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
AzqA:						
Ayrshire	Moderately well suited: low strength.	Slight	White oak	85	72	Bur oak, eastern white pine, green ash, northern red oak, swamp white oak, white ash, white oak.
			Pin oak	100	86	
			Tuliptree	100	114	
BcgAI:						
Battleground	Moderately well suited: low strength.	Slight	Tuliptree	100	114	Shumard oak, blackgum, bur oak, green ash, pin oak, shingle oak, swamp white oak.

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Suggested trees to plant
BhyA, BhyB2:						
Birkbeck	Moderately well suited: low strength.	Slight	White oak	86	72	Bur oak, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Green ash	---	---	
			Northern red oak	---	---	
BvlAK:						
Brouillett	Moderately well suited: low strength.	Slight	Silver maple	70	29	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			Red maple	---	---	
			White ash	---	---	
CbaA, CbaB2:						
Camden	Moderately well suited: low strength.	Slight	Northern red oak	85	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			White oak	85	72	
			Tuliptree	95	100	
			Green ash	76	72	
CfrG:						
Cates	Poorly suited: slope. Moderate limitation: low strength.	Severe: slope.	Black oak	50	29	Virginia pine, black oak, blackgum, bur oak, eastern redcedar, eastern white pine, green ash, scarlet oak.
ChqA:						
Chalmers	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, sweetgum.
			White oak	75	57	
CnaB, CnaC:						
Coloma	Moderately well suited: sandiness.	Slight	Black oak	---	---	Virginia pine, black oak, blackgum, bur oak, eastern redcedar, eastern white pine, green ash, scarlet oak.
CsuA:						
Crane	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			American sycamore	---	---	
			Swamp white oak	---	---	
			Pin oak	---	---	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
CudA:						
Crosby	Moderately well suited: low strength.	Slight	Northern red oak	75	57	Bur oak, eastern white pine, green ash, northern red oak, swamp white oak, tuliptree, white ash, white oak.
			Pin oak	85	72	
			White oak	75	57	
			Tuliptree	85	86	
DpbA:						
Drummer	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak,
			White oak	75	57	
EcoA:						
Edwardsville	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Bur oak, eastern white pine, green ash, northern red oak, swamp chestnut oak, tuliptree, white ash, white oak.
			White oak	75	57	
			Pin oak	85	72	
			Northern red oak	75	57	
EdeAK:						
Eel	Moderately well suited: low strength.	Slight	Tuliptree	100	114	Shumard oak, bur oak, green ash, pin oak, shingle oak, swamp white oak, tuliptree, white ash.
			Eastern cottonwood	---	---	
			White ash	---	---	
			Black walnut	---	---	
Beckville	Moderately well suited: low strength.	Slight	Tuliptree	95	100	Shumard oak, bur oak, green ash, pin oak, shingle oak, swamp white oak, tuliptree, white ash.
			Eastern cottonwood	---	---	
			Black walnut	---	---	
			White ash	---	---	
EmdA, EmdB:						
Elston	Well suited	Slight	Black oak	50	29	Virginia pine, black oak, blackgum, bur oak, eastern redcedar, eastern white pine, green ash, scarlet oak.
FamB:						
Fairpoint	Moderately well suited: low strength.	Slight	Black oak	50	29	Virginia pine, black oak, blackgum, bur oak, eastern redcedar, eastern white pine, green ash, scarlet oak.

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
FdbA, FdbB:						
Fincastle	Moderately well suited: low strength.	Slight	Tuliptree White oak Pin oak Northern red oak	85 75 85 75	86 57 72 57	Bur oak, eastern white pine, green ash, northern red oak, swamp chestnut oak, tuliptree, white ash, white oak.
FdnA:						
Fincastle	Moderately well suited: low strength.	Slight	Tuliptree White oak Pin oak Northern red oak	85 75 85 75	86 57 72 57	Bur oak, eastern white pine, green ash, northern red oak, swamp chestnut oak, tuliptree, white ash, white oak.
Starks	Moderately well suited: low strength.	Slight	White oak Northern red oak Tuliptree	80 80 90	57 57 86	Bur oak, eastern white pine, green ash, northern red oak, swamp chestnut oak, tuliptree, white ash, white oak.
GcaAK:						
Genesee	Moderately well suited: low strength.	Slight	Tuliptree	100	114	Shumard oak, black walnut, bur oak, eastern white pine, green ash, swamp white oak, tuliptree.
JcfG:						
Judyville	Poorly suited: slope.	Severe: slope.	Tuliptree	89	86	Black oak, eastern white pine, green ash, northern red oak, red pine, tuliptree, white oak.
KnqD2:						
Kendallville	Moderately well suited: low strength.	Moderate: slope.	White oak Northern red oak Tuliptree	90 90 98	72 72 100	Black cherry, black walnut, bur oak, chinkapin oak, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak.
LbrA:						
Lafayette	Moderately well suited: low strength.	Slight	Northern red oak Pin oak White oak Tuliptree	75 85 75 85	57 72 57 86	Bur oak, eastern white pine, green ash, northern red oak, swamp white oak, tuliptree, white ash, white oak.

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
LdxAK:						
Landes	Well suited	Slight	Tuliptree	95	100	Shumard oak, black walnut, bur oak, eastern white pine, green ash, swamp white oak, tuliptree.
			Eastern cottonwood	105	143	
			American sycamore	---	---	
			Green ash	---	---	
LfuAI:						
Lash	Well suited	Slight	Tuliptree	100	114	Baldcypress, blackgum, bur oak, green ash, pin oak, red maple, shingle oak, swamp white oak.
LfzB2:						
Lauramie	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
LugA, LugB2, LugC2, LuhC:						
Loudonville	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Black oak, bur oak, chinkapin oak, eastern white pine, red pine, scarlet oak, tuliptree, white oak.
			Eastern white pine	72	129	
			White oak	75	57	
			Northern red oak	72	57	
MamA:						
Mahalasville	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
			White oak	75	57	
MaoA:						
Mahalaland	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
			White oak	75	57	
MapA:						
Mahalasville, bedrock substratum	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
			White oak	75	57	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
MecB2:						
Martinsville	Moderately well suited: low strength.	Slight	White oak	80	57	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
MjuA:						
Mellott	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
MqlG:						
Minnehaha	Poorly suited: Slope. Moderate limitation: low strength.	Very severe: Slope.	Black oak	50	29	Virginia pine, black oak, blackgum, bur oak, eastern white pine, northern red oak, tuliptree, white oak.
MrcA:						
Mitiwanga	Moderately well suited: low strength.	Slight	White oak	75	57	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			Pin oak	85	72	
			Tuliptree	85	86	
ObmB2, ObmC2:						
Octagon	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, bur oak, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
ObxA, ObxB2, ObxC2:						
Ockley	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Northern red oak	90	72	
			Tuliptree	98	100	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
ObxD2:						
Ockley	Moderately well suited: low strength.	Moderate: slope.	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Northern red oak	90	72	
			Tuliptree	98	100	
Pg:						
Pits, gravel.						
PgaA:						
Pella	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
			White oak	75	57	
PnwBQ:						
Pinevillage	Well suited	Slight	Sugar maple	60	43	Blackgum, bur oak, chinkapin oak, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
			Common hackberry	---	---	
			American sycamore	---	---	
PvsA, PvsB2, PvsC2:						
Princeton	Well suited	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
RbfA:						
Ragsdale	Moderately well suited: low strength.	Slight	Pin oak	90	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
			White oak	75	57	
RbuB2, RbuC2:						
Rainsville	Moderately well suited: low strength.	Slight	Northern red oak	90	72	Bur oak, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
			White oak	88	72	
			Shagbark hickory	---	---	
RdvA:						
Raub	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			American sycamore	---	---	
			Swamp white oak	---	---	
			Pin oak	---	---	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
RetA:						
Rensselaer	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
			White oak	75	57	
RosAK:						
Rockmill	Poorly suited: wetness. Moderate limitation: low strength.	Slight	Silver maple	70	29	Baldcypress, bur oak, eastern green ash, red maple, river birch, silver maple, swamp white oak, tamarack.
RqaE:						
Rodman	Moderatley well suited: low strength, slope.	Moderate: slope.	White oak	70	57	Blackgum, bur oak, chinkapin oak, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
			Northern red oak	70	57	
			Red pine	75	114	
RqaG:						
Rodman	Poorly suited: slope. Moderate limitation: low strength.	Severe: slope.	White oak	70	57	Blackgum, bur oak, chinkapin oak, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
			Northern red oak	70	57	
			Red pine	75	114	
RtxAK:						
Rossburg	Moderately well suited: low strength.	Slight	White oak	90	72	Black cherry, black walnut, bur oak, eastern white pine, green ash, northern red oak, swamp white oak, tuliptree, white ash, white oak.
			Northern red oak	---	---	
			White ash	---	---	
			Black walnut	---	---	
RuxA:						
Raub	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			American sycamore	---	---	
			Swamp white oak	---	---	
			Pin oak	---	---	
Brenton	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			American sycamore	---	---	
			Swamp white oak	---	---	
			Pin oak	---	---	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
RyfA, RyfB2:						
Rush	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Northern red oak	90	72	
			Tuliptree	98	100	
RywB2, RywC2:						
Russell	Moderately well suited: low strength.	Slight	Northern red oak	90	72	Black cherry, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
			White oak	90	72	
			Tuliptree	98	100	
RywD2:						
Russell	Moderately well suited: low strength.	Moderate: slope.	Northern red oak	90	72	Black cherry, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
			White oak	90	72	
			Tuliptree	98	100	
RzcE:						
Russell	Moderately well suited: low strength, slope.	Moderate: slope.	Northern red oak	90	72	Black cherry, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
			White oak	90	72	
			Tuliptree	98	100	
Strawn	Moderately well suited: low strength, slope.	Moderate: slope.	Northern red oak	85	72	Black cherry, black walnut, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
			White oak	---	---	
SldAK:						
Shoals	Moderately well suited: low strength.	Slight	Pin oak	90	72	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			Tuliptree	90	86	
			White ash	---	---	
SlyA, SlyB2, SlzA, SlzB2, SlzC2:						
Silverwood	Moderately well suited: low strength.	Slight	Northern red oak	80	57	Black oak, blackgum, bur oak, eastern redcedar, eastern white pine, green ash, scarlet oak.
			White oak	---	---	
			Sugar maple	---	---	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume*	Suggested trees to plant
SlzD2:						
Silverwood----------	Moderately well suited: low strength.	Moderate: slope.	Northern red oak----	80	57	Black oak, blackgum, bur oak, eastern redcedar, eastern white pine, green ash, scarlet oak.
			White oak-----------	---	---	
			Sugar maple---------	---	---	
SngA:						
Sleeth-------------	Moderately well suited: low strength.	Slight---------------	White oak-----------	70	57	Bur oak, eastern white pine, green ash, northern red oak, pin oak, swamp white oak, white ash, white oak.
			Pin oak-------------	85	72	
			Tuliptree-----------	85	86	
SnlAP:						
Southwest----------	Moderately well suited: low strength.	Slight---------------	Pin oak-------------	86	72	Baldcypress, bur oak, eastern cottonwood, green ash, red maple, river birch, silver maple, swamp white oak, tamarack.
			Northern red oak----	75	57	
			Red maple-----------	70	43	
			Silver maple--------	---	---	
			Green ash-----------	---	---	
			White oak-----------	---	---	
			American basswood---	---	---	
SobAI:						
Sloan--------------	Poorly suited: wetness. Moderate limitation: low strength.	Slight---------------	Pin oak-------------	86	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, sweetgum.
			Swamp white oak-----	---	---	
			Red maple-----------	---	---	
Beaucoup-----------	Poorly suited: wetness. Moderate limitation: low strength.	Slight---------------	Pin oak-------------	90	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, sweetgum.
			Eastern cottonwood--	100	129	
			American sycamore---	---	---	
SseB2:						
St. Charles--------	Moderately well suited: low strength.	Slight---------------	White oak-----------	85	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Northern red oak----	85	72	
			Tuliptree-----------	95	100	
			Green ash-----------	---	---	
SteA:						
Starks-------------	Moderately well suited: low strength.	Slight---------------	White oak-----------	80	57	Bur oak, green ash, red oak, tuliptree, white oak, swamp white oak.
			Northern red oak----	80	57	
			Tuliptree-----------	90	86	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
SvqE:						
Strawn-------------	Moderately well suited: low strength, slope.	Moderate: slope:	Northern red oak---- White oak-----------	85 ---	72 ---	Eastern white, pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
SvqG:						
Strawn-------------	Poorly suited: slope. Moderate limitation: low strength.	Very severe: slope.	Northern red oak---- White oak-----------	85 ---	72 ---	Eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
SwdE:						
Strawn-------------	Moderately well suited: low strength, slope.	Moderate: slope.	Tuliptree----------- White oak----------- Northern red oak---- Black walnut--------	90 80 80 ---	86 57 57 ---	Eastern white, pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
Rodman-------------	Moderately well suited: low strength, slope.	Moderate: slope.	White oak----------- Northern red oak----	70 70	57 57	Blackgum, bur oak, chinkapin oak, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
SwdG:						
Strawn-------------	Poorly suited: slope. Moderate limitation: low strength.	Severe: slope.	Tuliptree----------- White oak----------- Northern red oak---- Black walnut--------	90 80 80 ---	86 57 57 ---	Eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak.
Rodman-------------	Poorly suited: slope. Moderate limitation: low strength.	Severe: slope.	White oak----------- Northern red oak----	70 70	57 57	Blackgum, bur oak, chinkapin oak, eastern redcedar, eastern white pine, green ash, red pine, scarlet oak, shagbark hickory.
TfdA, TfdB:						
Throckmorton-------	Moderately well suited: low strength.	Slight---------------	Northern red oak---- White oak----------- Tuliptree-----------	90 90 98	72 72 100	Bur oak, eastern white pine, green ash, northern red oak, pin oak, swamp white oak, white ash, white oak.

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
ThrA:						
Treaty	Moderately well suited: low strength.	Slight	Pin oak	90	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
TlxA:						
Toronto	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			American sycamore	---	---	
			Swamp white oak	---	---	
			Pin oak	---	---	
TmcA:						
Totanang	Moderately well suited: low strength.	Slight	White oak	86	72	Bur oak, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Green ash	---	---	
			Northern red oak	---	---	
UbyE:						
Udorthents.						
Uea:						
Urban land.						
WkmA, WkmB2:						
Waupecan	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
			Sweetgum	76	72	
WmnA:						
Waynetown	Moderately well suited: low strength.	Slight	Pin oak	85	72	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			White oak	75	57	
			Tuliptree	85	86	
WmpA, WmpB2:						
Wea	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
WqvA:						
Westland	Moderately well suited: low strength.	Slight	Pin oak	85	72	Baldcypress, bur oak, green ash, pin oak, red maple, swamp white oak, blackgum.
WsuA, WtaA:						
Whitaker	Moderately well suited: low strength.	Slight	Tuliptree	85	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			White oak	70	57	
			Pin oak	85	72	
			Northern red oak	75	57	
WufB2:						
Williamstown	Moderately well suited: low strength.	Slight	Northern red oak	90	72	Shumard oak, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	110	129	
			White oak	---	---	
			Black cherry	---	---	
			Black walnut	---	---	
			White ash	---	---	
			Sugar maple	---	---	
WvaA, WvaB2:						
Wingate	Moderately well suited: low strength.	Slight	White oak	86	72	Bur oak, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Green ash	---	---	
			Northern red oak	---	---	
XabA, XabB2:						
Xenia	Moderately well suited: low strength.	Slight	Tuliptree	98	100	Bur oak, eastern white pine, green ash, northern red oak, swamp white oak, tuliptree, white ash, white oak.
			White oak	90	72	
XfuB2, XfuC2:						
Miami	Moderately well suited: low strength.	Slight	White oak	90	72	Shumard oak, black cherry, black walnut, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Tuliptree	98	100	
Rainsville	Moderately well suited: low strength.	Slight	White oak	88	72	Shumard oak, eastern white pine, green ash, northern red oak, tuliptree, white ash, white oak.
			Northern red oak	90	72	
			Tuliptree	98	100	

See footnote at end of table.

Table 9.--Forestland Management and Productivity--Continued

Map symbol and soil name	Management concerns: Suitability for the use of harvesting equipment	Management concerns: Hazard of erosion (off-road, off-trail)	Potential productivity: Common trees	Site index	Volume*	Suggested trees to plant
YedA:						
Yeddo	Moderately well suited: low strength.	Slight	Tuliptree	86	86	Shumard oak, bur oak, green ash, pin oak, swamp white oak, tuliptree, white ash, white oak.
			Northern red oak	76	57	
			Pin oak	---	---	
			Swamp white oak	---	---	
			Eastern cottonwood	---	---	
			Green ash	---	---	
			Red maple	---	---	

* Volume is the yield in cubic feet per acre per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

Table 10, Part 1.--Recreational 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 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
AbfA:						
Adeland	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
AbhAI:						
Adrian	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Ponding	1.00	Content of organic matter	1.00	Flooding	1.00
	Content of organic matter	1.00	Flooding	0.40	Ponding	1.00
AjaAI:						
Allison	Very limited:		Somewhat limited:		Very limited:	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
ApkA:						
Angatoka	Not limited		Not limited		Not limited	
AplA:						
Angatoka	Not limited		Not limited		Not limited	
AplB2:						
Angatoka	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
AplC2:						
Angatoka	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
AzqA:						
Ayrshire	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
BcgAI:						
Battleground	Very limited:		Somewhat limited:		Very limited:	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
BhyA:						
Birkbeck	Not limited		Not limited		Not limited	
BhyB2:						
Birkbeck	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
BvlAK:						
Brouillett	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00			Flooding	0.60

Table 10, Part 1.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
CbaA:						
Camden	Not limited		Not limited		Not limited	
CbaB2:						
Camden	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
CfrG:						
Cates	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.99
					Depth to bedrock	0.42
					Content of large stones	0.01
ChqA:						
Chalmers	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
CnaB:						
Coloma	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Too sandy	0.88	Too sandy	0.88	Too sandy	0.88
					Slope	0.52
CnaC:						
Coloma	Somewhat limited:		Somewhat limited:		Very limited:	
	Too sandy	0.88	Too sandy	0.88	Slope	1.00
	Slope	0.16	Slope	0.16	Too sandy	0.88
CsuA:						
Crane	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CudA:						
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
DpbA:						
Drummer	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
EcoA:						
Edwardsville	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EdeAK:						
Eel	Very limited:		Somewhat limited:		Somewhat limited:	
	Flooding	1.00	Depth to saturated zone	0.75	Depth to saturated zone	1.00
	Depth to saturated zone	1.00			Flooding	0.60

Table 10, Part 1.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
EdeAK:						
Beckville	Very limited:		Somewhat limited:		Somewhat limited:	
	Flooding	1.00	Depth to saturated zone	0.75	Depth to saturated zone	1.00
	Depth to saturated zone	1.00			Flooding	0.60
EmdA:						
Elston	Not limited		Not limited		Not limited	
EmdB:						
Elston	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
FamB:						
Fairpoint	Somewhat limited:		Somewhat limited:		Very limited:	
	Restricted permeability	0.21	Restricted permeability	0.21	Gravel content	1.00
	Gravel content	0.13	Gravel content	0.13	Restricted permeability	0.21
					Slope	0.19
					Content of large stones	0.08
FdbA:						
Fincastle	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FdbB:						
Fincastle	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Slope	0.19
FdnA:						
Fincastle	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Starks	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
GcaAK:						
Genesee	Very limited:		Not limited		Somewhat limited:	
	Flooding	1.00			Flooding	0.60
JcfG:						
Judyville	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.42
KnqD2:						
Kendallville	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
LbrA:						
Lafayette	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 10, Part 1.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
LdxAK:						
Landes	Very limited:		Not limited		Somewhat limited:	
	Flooding	1.00			Flooding	0.60
					Gravel content	0.22
LfuAI:						
Lash	Very limited:		Somewhat limited:		Very limited:	
	Flooding	1.00	Flooding	0.40	Flooding	1.00
LfzB2:						
Lauramie	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
LugA:						
Loudonville	Not limited		Not limited		Somewhat limited:	
					Gravel content	0.11
LugB2:						
Loudonville	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
					Depth to bedrock	0.42
					Gravel content	0.11
LugC2:						
Loudonville	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
					Depth to bedrock	0.42
					Gravel content	0.11
LuhC:						
Loudonville	Somewhat limited:		Somewhat limited:		Very limited:	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Slope	0.01	Slope	0.01	Restricted permeability	0.96
					Depth to bedrock	0.42
					Gravel content	0.11
MamA:						
Mahalasville	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
MaoA:						
Mahalaland	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
MapAa:						
Mahalasville, bedrock substratum	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		Ponding	1.00
MecB2:						
Martinsville	Not limited		Not limited		Somewhat limited:	
					Slope	0.52

Table 10, Part 1.--Recreational Development--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
MjuA:						
Mellott------------	Not limited		Not limited		Not limited	
MqlG:						
Minnehaha-----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.01
MrcA:						
Mitiwanga-----------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
ObmB2:						
Octagon-------------	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
ObmC2:						
Octagon-------------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
ObxA:						
Ockley--------------	Not limited		Not limited		Not limited	
ObxB2:						
Ockley--------------	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
ObxC2:						
Ockley--------------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
ObxD2:						
Ockley--------------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
Pg:						
Pits, gravel--------	Not rated		Not rated		Not rated	
PgaA:						
Pella---------------	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		Ponding	1.00
PnwBQ:						
Pinevillage---------	Very limited:		Somewhat limited:		Very limited:	
	Flooding	1.00	Gravel content	0.26	Gravel content	1.00
	Gravel content	0.26			Slope	0.77
					Content of large stones	0.05
PvsA:						
Princeton-----------	Not limited		Not limited		Not limited	
PvsB2:						
Princeton-----------	Not limited		Not limited		Somewhat limited:	
					Slope	0.52

Table 10, Part 1.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
PvsC2:						
Princeton-----------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
RbfA:						
Ragsdale------------	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
RbuB2:						
Rainsville----------	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
RbuC2:						
Rainsville----------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
RdvA:						
Raub----------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
RetA:						
Rensselaer----------	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
RosAK:						
Rockmill------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00			Flooding	0.60
RqaE:						
Rodman--------------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.01
RqaG:						
Rodman--------------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.01
RtxAK:						
Rossburg------------	Very limited:		Not limited		Somewhat limited:	
	Flooding	1.00			Flooding	0.60
RuxA:						
Raub----------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 10, Part 1.--Recreational Development--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
RuxA:						
Brenton	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RyfA:						
Rush	Not limited		Not limited		Not limited	
RyfB2:						
Rush	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
RywB2:						
Russell	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
RywC2:						
Russell	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
RywD2:						
Russell	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
RzcE:						
Russell	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
Strawn	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
SldAK:						
Shoals	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00			Flooding	0.60
SlyA:						
Silverwood	Not limited		Not limited		Somewhat limited:	
					Gravel content	0.22
SlyB2:						
Silverwood	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
					Gravel content	0.22
SlzA:						
Silverwood	Not limited		Not limited		Somewhat limited:	
					Gravel content	0.22
SlzB2:						
Silverwood	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
					Gravel content	0.22

Table 10, Part 1.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
SlzC2:						
Silverwood----------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
					Gravel content	0.22
SlzD2:						
Silverwood----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.22
SngA:						
Sleeth--------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SnlAP:						
Southwest-----------	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
SobAI:						
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	0.40	Flooding	1.00
Beaucoup------------	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	0.40	Flooding	1.00
SseB2:						
St. Charles---------	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
SteA:						
Starks--------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SvqE:						
Strawn--------------	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
SvqG:						
Strawn--------------	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
SwdE:						
Strawn--------------	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

Table 10, Part 1.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
SwdE:						
Rodman	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.01
SwdG:						
Strawn	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
Rodman	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.01
TfdA:						
Throckmorton	Not limited		Not limited		Not limited	
TfdB:						
Throckmorton	Not limited		Not limited		Somewhat limited:	
					Slope	0.19
ThrA:						
Treaty	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
TlxA:						
Toronto	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
TmcA:						
Totanang	Not limited		Not limited		Not limited	
UbyE:						
Udorthents	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
Uea:						
Urban land	Not rated		Not rated		Not rated	
WkmA:						
Waupecan	Not limited		Not limited		Not limited	
WkmB2:						
Waupecan	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
WmnA:						
Waynetown	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WmpA:						
Wea	Not limited		Not limited		Not limited	

Table 10, Part 1.--Recreational Development--Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
WmpB2:						
Wea	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
WqvA:						
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
WsuA:						
Whitaker	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WtaA:						
Whitaker	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WufB2:						
Williamstown	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	Slope	0.52
					Restricted permeability	0.21
WvaA:						
Wingate	Not limited		Not limited		Not limited	
WvaB2:						
Wingate	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
XabA:						
Xenia	Very limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	1.00
XabB2:						
Xenia	Very limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	1.00
					Slope	0.52
XfuB2:						
Miami	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.52
					Restricted permeability	0.21
Rainsville	Not limited		Not limited		Somewhat limited:	
					Slope	0.52
XfuC2:						
Miami	Somewhat limited:		Somewhat limited:		Very limited:	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.01	Slope	0.01	Restricted permeability	0.21

Table 10, Part 1.--Recreational Development--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
XfuC2:						
Rainsville----------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
YedA:						
Yeddo---------------	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 10, Part 2.--Recreational 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 limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
AbfA:				
Adeland	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to bedrock	0.42
AbhAI:				
Adrian	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Content of organic matter	1.00	Flooding	1.00
	Ponding	1.00	Content of organic matter	1.00
	Flooding	0.40	Depth to saturated zone	1.00
AjaAI:				
Allison	Somewhat limited:		Very limited:	
	Flooding	0.40	Flooding	1.00
ApkA:				
Angatoka	Not limited		Not limited	
AplA:				
Angatoka	Not limited		Not limited	
AplB2:				
Angatoka	Not limited		Not limited	
AplC2:				
Angatoka	Very limited:		Somewhat limited:	
	Water erosion	1.00	Slope	0.01
AzqA:				
Ayrshire	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
BcgAI:				
Battleground	Somewhat limited:		Very limited:	
	Flooding	0.40	Flooding	1.00
BhyA:				
Birkbeck	Not limited		Not limited	
BhyB2:				
Birkbeck	Not limited		Not limited	
BvlAK:				
Brouillett	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Flooding	0.60

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
CbaA:				
Camden	Not limited		Not limited	
CbaB2:				
Camden	Not limited		Not limited	
CfrG:				
Cates	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
			Depth to bedrock	0.42
			Droughty	0.03
			Content of large stones	0.01
ChqA:				
Chalmers	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
CnaB:				
Coloma	Somewhat limited:		Somewhat limited:	
	Too sandy	0.88	Droughty	0.06
CnaC:				
Coloma	Somewhat limited:		Somewhat limited:	
	Too sandy	0.88	Droughty	0.24
			Slope	0.16
CsuA:				
Crane	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CudA:				
Crosby	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
DpbA:				
Drummer	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
EcoA:				
Edwardsville	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EdeAK:				
Eel	Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.44	Depth to saturated zone	0.75
			Flooding	0.60

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
EdeAK:				
Beckville	Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.44	Depth to saturated zone	0.75
			Flooding	0.60
EmdA:				
Elston	Not limited		Not limited	
EmdB:				
Elston	Not limited		Not limited	
FamB:				
Fairpoint	Not limited		Somewhat limited:	
			Droughty	0.51
			Gravel content	0.13
			Content of large stones	0.08
FdbA:				
Fincastle	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FdbB:				
Fincastle	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FdnA:				
Fincastle	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Starks	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
GcaAK:				
Genesee	Not limited		Somewhat limited:	
			Flooding	0.60
JcfG:				
Judyville	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
			Depth to bedrock	0.42
KnqD2:				
Kendallville	Very limited:		Very limited:	
	Water erosion	1.00	Slope	1.00
	Slope	0.01		
LbrA:				
Lafayette	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
LdxAK:				
Landes	Not limited		Somewhat limited:	
			Flooding	0.60

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
LfuAI:				
Lash----------------	Somewhat limited:		Very limited:	
	Flooding	0.40	Flooding	1.00
LfzB2:				
Lauramie------------	Not limited		Not limited	
LugA:				
Loudonville---------	Not limited		Somewhat limited:	
			Depth to bedrock	0.42
LugB2:				
Loudonville---------	Not limited		Somewhat limited:	
			Depth to bedrock	0.42
LugC2:				
Loudonville---------	Not limited		Somewhat limited:	
			Depth to bedrock	0.42
			Slope	0.01
LuhC:				
Loudonville---------	Not limited		Somewhat limited:	
			Depth to bedrock	0.42
			Droughty	0.07
			Slope	0.01
MamA:				
Mahalasville--------	Very limited:		Very limited:	
	Depth to		Ponding	1.00
	saturated zone	1.00	Depth to	
	Ponding	1.00	saturated zone	1.00
MaoA:				
Mahalaland----------	Very limited:		Very limited:	
	Depth to		Ponding	1.00
	saturated zone	1.00	Depth to	
	Ponding	1.00	saturated zone	1.00
MapA:				
Mahalasville,				
bedrock substratum	Very limited:		Very limited:	
	Depth to		Ponding	1.00
	saturated zone	1.00	Depth to	
	Ponding	1.00	saturated zone	1.00
MecB2:				
Martinsville--------	Not limited		Not limited	
MjuA:				
Mellott-------------	Not limited		Not limited	
MqlG:				
Minnehaha-----------	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
			Droughty	0.86
			Content of large	
			stones	0.01

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
MrcA:				
Mitiwanga	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Depth to bedrock	0.42
ObmB2:				
Octagon	Not limited		Not limited	
ObmC2:				
Octagon	Very limited:		Somewhat limited:	
	Water erosion	1.00	Slope	0.01
ObxA:				
Ockley	Not limited		Not limited	
ObxB2:				
Ockley	Not limited		Not limited	
ObxC2:				
Ockley	Very limited:		Somewhat limited:	
	Water erosion	1.00	Slope	0.01
ObxD2:				
Ockley	Very limited:		Very limited:	
	Water erosion	1.00	Slope	1.00
	Slope	0.01		
Pg:				
Pits, gravel	Not rated		Not rated	
PgaA:				
Pella	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
PnwBQ:				
Pinevillage	Not limited		Somewhat limited:	
			Gravel content	0.26
			Content of large stones	0.05
PvsA:				
Princeton	Not limited		Not limited	
PvsB2:				
Princeton	Not limited		Not limited	
PvsC2:				
Princeton	Not limited		Somewhat limited:	
			Slope	0.01
RbfA:				
Ragsdale	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
RbuB2:				
Rainsville	Not limited		Not limited	
RbuC2:				
Rainsville	Very limited:		Somewhat limited:	
	Water erosion	1.00	Slope	0.01
RdvA:				
Raub	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RetA:				
Rensselaer	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
RosAK:				
Rockmill	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
			Flooding	0.60
RqaE:				
Rodman	Somewhat limited:		Very limited:	
	Slope	0.50	Slope	1.00
			Droughty	0.98
RqaG:				
Rodman	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
			Droughty	0.98
RtxAK:				
Rossburg	Not limited		Somewhat limited:	
			Flooding	0.60
RuxA:				
Raub	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Brenton	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RyfA:				
Rush	Not limited		Not limited	
RyfB2:				
Rush	Not limited		Not limited	
RywB2:				
Russell	Not limited		Not limited	
RywC2:				
Russell	Very limited:		Somewhat limited:	
	Water erosion	1.00	Slope	0.01

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
RywD2:				
Russell	Very limited:		Very limited:	
	Water erosion	1.00	Slope	1.00
	Slope	0.01		
RzcE:				
Russell	Very limited:		Very limited:	
	Water erosion	1.00	Slope	1.00
	Slope	0.50		
Strawn	Very limited:		Very limited:	
	Water erosion	1.00	Slope	1.00
	Slope	0.50	Droughty	0.11
SldAK:				
Shoals	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Flooding	0.60
SlyA:				
Silverwood	Not limited		Not limited	
SlyB2:				
Silverwood	Not limited		Not limited	
SlzA:				
Silverwood	Not limited		Not limited	
SlzB2:				
Silverwood	Not limited		Not limited	
SlzC2:				
Silverwood	Not limited		Somewhat limited:	
			Slope	0.01
SlzD2:				
Silverwood	Somewhat limited:		Very limited:	
	Slope	0.01	Slope	1.00
SngA:				
Sleeth	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SnlAP:				
Southwest	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
SobAI:				
Sloan	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Depth to saturated zone	1.00

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
SobAI:				
Beaucoup-----------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Depth to saturated zone	1.00
SseB2:				
St. Charles---------	Not limited		Not limited	
SteA:				
Starks--------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
SvqE:				
Strawn--------------	Very limited:		Very limited:	
	Water erosion	1.00	Slope	1.00
	Slope	0.50	Droughty	0.11
SvqG:				
Strawn--------------	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Water erosion	1.00	Droughty	0.10
SwdE:				
Strawn--------------	Very limited:		Very limited:	
	Water erosion	1.00	Slope	1.00
	Slope	0.50	Droughty	0.11
Rodman--------------	Somewhat limited:		Very limited:	
	Slope	0.50	Slope	1.00
			Droughty	0.98
SwdG:				
Strawn--------------	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Water erosion	1.00	Droughty	0.10
Rodman--------------	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
			Droughty	0.98
TfdA:				
Throckmorton--------	Not limited		Not limited	
TfdB:				
Throckmorton--------	Not limited		Not limited	
ThrA:				
Treaty--------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
TlxA:				
Toronto-------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails: Rating class and limiting features	Paths and trails: Value	Golf fairways: Rating class and limiting features	Golf fairways: Value
TmcA:				
Totanang	Not limited		Not limited	
UbyE:				
Udorthents	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Water erosion	1.00		
Uea:				
Urban land	Not rated		Not rated	
WkmA:				
Waupecan	Not limited		Not limited	
WkmB2:				
Waupecan	Not limited		Not limited	
WmnA:				
Waynetown	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WmpA:				
Wea	Not limited		Not limited	
WmpB2:				
Wea	Not limited		Not limited	
WqvA:				
Westland	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
WsuA:				
Whitaker	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WtaA:				
Whitaker	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WufB2:				
Williamstown	Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.44	Depth to saturated zone	0.75
WvaA:				
Wingate	Not limited		Not limited	
WvaB2:				
Wingate	Not limited		Not limited	

Table 10, Part 2.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
XabA:				
Xenia	Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.44	Depth to saturated zone	0.75
XabB2:				
Xenia	Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.44	Depth to saturated zone	0.75
XfuB2:				
Miami	Not limited		Not limited	
Rainsville	Not limited		Not limited	
XfuC2:				
Miami	Very limited:		Somewhat limited:	
	Water erosion	1.00	Slope	0.01
Rainsville	Very limited:		Somewhat limited:	
	Water erosion	1.00	Slope	0.01
YedA:				
Yeddo	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 11.--Wildlife Habitat

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated.)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AbfA:										
Adeland	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
AbhAI:										
Adrian	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
AjaAI:										
Allison	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor.
ApkA, AplA, AplB2:										
Angatoka	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
AplC2:										
Angatoka	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
AzqA:										
Ayrshire	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
BcgAI:										
Battleground	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
BhyA, BhyB2:										
Birkbeck	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
BvlAK:										
Brouillett	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
CbaA, CbaB2:										
Camden	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
CfrG:										
Cates	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
ChqA:										
Chalmers	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
CnaB:										
Coloma	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
CnaC:										
Coloma	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
CsuA:										
Crane	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
CudA:										
Crosby	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
DpbA:										
Drummer	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

Table 11.--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
EcoA:										
Edwardsville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
EdeAK:										
Eel	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Beckville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
EmdA, EmdB:										
Elston	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
FamB:										
Fairpoint	Poor	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Poor	Very poor.
FdbA:										
Fincastle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
FdbB:										
Fincastle	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
FdnA:										
Fincastle	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Starks	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
GcaAK:										
Genesee	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
JcfG:										
Judyville	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Fair	Very poor.
KnqD2:										
Kendallville	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
LbrA:										
Lafayette	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
LdxAK:										
Landes	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LfuAI:										
Lash	Poor	Fair	Fair	Good	Good	Poor	Very poor.	Fair	Good	Very poor.
LfzB2:										
Lauramie	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LugA:										
Loudonville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
LugB2:										
Loudonville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 11.--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
LugC2: Loudonville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
LuhC: Loudonville	Poor	Fair	Good	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
MamA: Mahalasville	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
MaoA: Mahalaland	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Poor.
MapA: Mahalasville, bedrock substratum	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
MecB2: Martinsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MjuA: Mellott	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MqlG: Minnehaha	Very poor.	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
MrcA: Mitiwanga	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
ObmB2: Octagon	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ObmC2: Octagon	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ObxA, ObxB2: Ockley	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
ObxC2: Ockley	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ObxD2: Ockley	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Pg: Pits, gravel.										
PgaA: Pella	Fair	Fair	Good	Fair	Fair	Good	Good	Fair	Fair	Good.
PnwBQ: Pinevillage	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 11.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
PvsA, PvsB2										
Princeton	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
PvsC2:										
Princeton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
RbfA:										
Ragsdale	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good .
RbuB2:										
Rainsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
RbuC2:										
Rainsville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
RdvA:										
Raub	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
RetA:										
Rensselaer	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
RosAK:										
Rockmill	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
RqaE:										
Rodman	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
RqaG:										
Rodman	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
RtxAK:										
Rossburg	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
RuxA:										
Raub	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Brenton	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
RyfA, RyfB2:										
Rush	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
RywB2:										
Russell	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
RywC2:										
Russell	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
RywD2:										
Russell	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 11.--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
RzcE:										
Russell------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Strawn------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SldAK:										
Shoals------------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
SlyA, SlyB2, SlzA, SlzB2:										
Silverwood-------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SlzC2:										
Silverwood--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SlzD2:										
Silverwood--------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SngA:										
Sleeth------------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
SnlAP:										
Southwest---------	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
SobAI:										
Sloan-------------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Beaucoup----------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
SseB2:										
St. Charles-------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SteA:										
Starks------------	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
SvqE:										
Strawn------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SvqG:										
Strawn------------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
SwdE:										
Strawn------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Rodman------------	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
SwdG:										
Strawn------------	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Rodman------------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.

Table 11.--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
TfdA, TfdB:										
Throckmorton	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
ThrA:										
Treaty	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
TlxA:										
Toronto	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
TmcA:										
Totanang	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
UbyE:										
Udorthents.										
Uea:										
Urban land.										
WkmA, WkmB2:										
Waupecan	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WmnA:										
Waynetown	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
WmpA, WmpB2:										
Wea	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WqvA:										
Westland	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
WsuA, WtaA:										
Whitaker	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
WufB2:										
Williamstown	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WvaA:										
Wingate	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
WvaB2:										
Wingate	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
XabA:										
Xenia	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
XabB2:										
Xenia	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
XfuB2:										
Miami	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Rainsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 11.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
XfuC2:										
Miami	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Rainsville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
YedA:										
Yeddo	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

Table 12, Part 1.--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 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
AbfA:						
Adeland---------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
	Depth to hard bedrock	0.42	Shrink-swell	0.50	Depth to hard bedrock	0.42
AbhAI:						
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
	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
	Content of organic matter	1.00			Content of organic matter	1.00
AjaAI:						
Allison---------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
			Shrink-swell	0.50		
ApkA:						
Angatoka--------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
AplA:						
Angatoka--------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
AplB2:						
Angatoka--------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.01
AplC2:						
Angatoka--------	Somewhat limited:		Somewhat limited:		Very limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.01	Slope	0.01	Shrink-swell	0.50
AzqA:						
Ayrshire--------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
BcgAI:						
Battleground----	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

Table 12, Part 1.--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
BhyA:						
Birkbeck--------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50		
BhyB2:						
Birkbeck--------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50	Slope	0.01
BvlAK:						
Brouillett------	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
CbaA:						
Camden----------	Somewhat limited:		Not limited		Somewhat limited:	
	Shrink-swell	0.50			Shrink-swell	0.50
CbaB2:						
Camden----------	Somewhat limited:		Not limited		Somewhat limited:	
	Shrink-swell	0.50			Shrink-swell	0.50
					Slope	0.01
CfrG:						
Cates-----------	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
ChqA:						
Chalmers--------	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
CnaB:						
Coloma----------	Not limited		Not limited		Somewhat limited:	
					Slope	0.01
CnaC:						
Coloma----------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.16	Slope	0.16	Slope	1.00
CsuA:						
Crane-----------	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
CudA:						
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 12, Part 1.--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
DpbA:						
Drummer----------	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
EcoA:						
Edwardsville----	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
EdeAK:						
Eel--------------	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
Beckville-------	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
EmdA:						
Elston----------	Not limited		Not limited		Not limited	
EmdB:						
Elston----------	Not limited		Not limited		Somewhat limited:	
					Slope	0.01
FamB:						
Fairpoint-------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FdbA:						
Fincastle-------	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
FdbB:						
Fincastle-------	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
FdnA:						
Fincastle-------	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
Starks----------	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 12, Part 1.--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
GcaAK:						
Genesee---------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
JcfG:						
Judyville-------	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
KnqD2:						
Kendallville----	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
LbrA:						
Lafayette-------	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
LdxAK:						
Landes----------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
LfuAI:						
Lash------------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
LfzB2:						
Lauramie--------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.01
LugA:						
Loudonville-----	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
LugB2:						
Loudonville-----	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
					Slope	0.01
LugC2:						
Loudonville-----	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	0.01	Slope	0.01	Depth to hard bedrock	0.42

Table 12, Part 1.--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
LuhC:						
Loudonville-----	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	0.01	Slope	0.01	Depth to hard bedrock	0.42
MamA:						
Mahalasville----	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
MaoA:						
Mahalaland------	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
MapA:						
Mahalasville, bedrock substratum-----	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
MecB2:						
Martinsville----	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.01
MjuA:						
Mellott---------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
MqlG:						
Minnehaha-------	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
MrcA:						
Mitiwanga-------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Shrink-swell	0.50
	Depth to hard bedrock	0.42	Shrink-swell	0.50	Depth to hard bedrock	0.42
ObmB2:						
Octagon---------	Not limited		Very limited:		Somewhat limited:	
			Depth to saturated zone	1.00	Slope	0.01

Table 12, Part 1.--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
ObmC2:						
Octagon---------	Somewhat limited:		Very limited:		Very limited:	
	Slope	0.01	Depth to saturated zone	1.00	Slope	1.00
			Slope	0.01		
ObxA:						
Ockley----------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
ObxB2:						
Ockley----------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
					Slope	0.01
ObxC2:						
Ockley----------	Somewhat limited:		Somewhat limited:		Very limited:	
	Shrink-swell	0.06	Shrink-swell	0.06	Slope	1.00
	Slope	0.01	Slope	0.01	Shrink-swell	0.06
ObxD2:						
Ockley----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
Pg:						
Pits, gravel----	Not rated		Not rated		Not rated	
PgaA:						
Pella-----------	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
PnwBQ:						
Pinevillage-----	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
					Slope	0.12
PvsA:						
Princeton-------	Not limited		Not limited		Not limited	
PvsB2:						
Princeton-------	Not limited		Not limited		Somewhat limited:	
					Slope	0.01
PvsC2:						
Princeton-------	Somewhat limited:		Somewhat limited:		Very limited:	
	Slope	0.01	Slope	0.01	Slope	1.00
RbfA:						
Ragsdale--------	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

Table 12, Part 1.--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
RbuB2:						
Rainsville------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50	Slope	0.01
RbuC2:						
Rainsville------	Somewhat limited:		Very limited:		Very limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.01		
RdvA:						
Raub------------	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
RetA:						
Rensselaer------	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
RosAK:						
Rockmill--------	Very limited:		Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
RqaE:						
Rodman----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
RqaG:						
Rodman----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
RtxAK:						
Rossburg--------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
RuxA:						
Raub------------	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
Brenton---------	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 12, Part 1.--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
RyfA:						
Rush	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
RyfB2:						
Rush	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.01
RywB2:						
Russell	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.24	Slope	0.01
RywC2:						
Russell	Somewhat limited:		Somewhat limited:		Very limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.01	Depth to saturated zone	0.24	Shrink-swell	0.50
			Slope	0.01		
RywD2:						
Russell	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	0.24		
RzcE:						
Russell	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	0.24		
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
SldAK:						
Shoals	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
SlyA:						
Silverwood	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
SlyB2:						
Silverwood	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.01
SlzA:						
Silverwood	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 12, Part 1.--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
SlzB2:						
Silverwood------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.01
SlzC2:						
Silverwood------	Somewhat limited:		Somewhat limited:		Very limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.01	Slope	0.01	Shrink-swell	0.50
SlzD2:						
Silverwood------	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
SngA:						
Sleeth----------	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
SnlAP:						
Southwest-------	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		
SobAI:						
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
Beaucoup--------	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
SseB2:						
St. Charles-----	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.01
SteA:						
Starks----------	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
SvqE:						
Strawn----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
SvqG:						
Strawn----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 12, Part 1.--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
SwdE:						
Strawn----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
Rodman----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
SwdG:						
Strawn----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
Rodman----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
TfdA:						
Throckmorton----	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50		
TfdB:						
Throckmorton----	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50		
ThrA:						
Treaty----------	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
TlxA:						
Toronto---------	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
TmcA:						
Totanang--------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	0.95	Shrink-swell	0.50
UbyE:						
Udorthents------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
Uea:						
Urban land------	Not rated		Not rated		Not rated	
WkmA:						
Waupecan--------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.01	Shrink-swell	0.50
WkmB2:						
Waupecan--------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Shrink-swell	0.50	Shrink-swell	0.01	Shrink-swell	0.50
					Slope	0.01

Table 12, Part 1.--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
WmnA:						
Waynetown-------	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50
WmpA:						
Wea-------------	Somewhat limited: Shrink-swell	 0.50	Somewhat limited: Shrink-swell	 0.50	Somewhat limited: Shrink-swell	 0.50
WmpB2:						
Wea-------------	Somewhat limited: Shrink-swell	 0.50	Somewhat limited: Shrink-swell	 0.50	Somewhat limited: Shrink-swell Slope	 0.50 0.01
WqvA:						
Westland--------	Very limited: Ponding Depth to saturated zone	 1.00 1.00	Very limited: Ponding Depth to saturated zone	 1.00 1.00	Very limited: Ponding Depth to saturated zone	 1.00 1.00
WsuA:						
Whitaker--------	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50
WtaA:						
Whitaker--------	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50
WufB2:						
Williamstown----	Somewhat limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell Slope	 1.00 0.50 0.01
WvaA:						
Wingate---------	Somewhat limited: Shrink-swell	 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Somewhat limited: Shrink-swell	 0.50
WvaB2:						
Wingate---------	Somewhat limited: Shrink-swell	 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Somewhat limited: Shrink-swell Slope	 0.50 0.01
XabA:						
Xenia-----------	Somewhat limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50	Very limited: Depth to saturated zone Shrink-swell	 1.00 0.50

Table 12, Part 1.--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
XabB2:						
Xenia-----------	Somewhat 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
					Slope	0.01
XfuB2:						
Miami-----------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50	Slope	0.01
Rainsville------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50	Slope	0.01
XfuC2:						
Miami-----------	Somewhat limited:		Very limited:		Very limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.01		
Rainsville------	Somewhat limited:		Very limited:		Very limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.01		
YedA:						
Yeddo-----------	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 12, Part 2.--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 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
AbfA:						
Adeland---------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50	Too clayey	0.02		
	Depth to hard bedrock	0.42				
AbhAI:						
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	Flooding	1.00
	Subsidence	1.00	Cutbanks cave	1.00	Content of organic matter	1.00
	Frost action	1.00	Content of organic matter	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
AjaAI:						
Allison---------	Very limited:		Somewhat limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	0.95	Flooding	1.00
	Flooding	1.00	Flooding	0.80		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
ApkA:						
Angatoka--------	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
AplA:						
Angatoka--------	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
AplB2:						
Angatoka--------	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
AplC2:						
Angatoka--------	Very limited:		Somewhat limited:		Somewhat limited:	
	Frost action	1.00	Cutbanks cave	0.50	Slope	0.01
	Low strength	1.00	Slope	0.01		
	Shrink-swell	0.50				
	Slope	0.01				

Table 12, Part 2.--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
AzqA:						
Ayrshire--------	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	1.00		
BcgAI:						
Battleground----	Very limited:		Somewhat limited:		Very limited:	
	Frost action	1.00	Flooding	0.80	Flooding	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
BhyA:						
Birkbeck--------	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Depth to saturated zone	1.00		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
BhyB2:						
Birkbeck--------	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Depth to saturated zone	1.00		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
BvlAK:						
Brouillett------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	0.60	Flooding	0.60
	Low strength	0.78	Cutbanks cave	0.10		
	Frost action	0.50				
CbaA:						
Camden----------	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
CbaB2:						
Camden----------	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
CfrG:						
Cates-----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	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	Droughty	0.03
					Content of large stones	0.01

Table 12, Part 2.--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
ChqA:						
Chalmers	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		
	Low strength	1.00				
	Shrink-swell	0.50				
CnaB:						
Coloma	Not limited		Very limited:		Somewhat limited:	
			Cutbanks cave	1.00	Droughty	0.06
CnaC:						
Coloma	Somewhat limited:		Very limited:		Somewhat limited:	
	Slope	0.16	Cutbanks cave	1.00	Droughty	0.24
			Slope	0.16	Slope	0.16
CsuA:						
Crane	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	1.00		
	Low strength	0.78	Depth to dense layer	0.50		
	Shrink-swell	0.50				
CudA:						
Crosby	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	Depth to dense layer	0.50		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
DpbA:						
Drummer	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		
	Low strength	1.00				
	Shrink-swell	0.50				
EcoA:						
Edwardsville	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	1.00				
	Shrink-swell	0.50				
EdeAK:						
Eel	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	1.00	Flooding	0.60
	Depth to saturated zone	0.75	Flooding	0.60		
	Frost action	0.50				

Table 12, Part 2.--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
EdeAK:						
Beckville-------	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Flooding	0.60	Flooding	0.60
	Frost action	0.50	Cutbanks cave	0.10		
EmdA:						
Elston----------	Somewhat limited:		Very limited:		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
EmdB:						
Elston----------	Somewhat limited:		Very limited:		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
FamB:						
Fairpoint-------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Cutbanks cave	1.00	Droughty	0.51
	Frost action	0.50			Gravel content	0.13
					Content of large stones	0.08
FdbA:						
Fincastle-------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Depth to dense layer	0.50		
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
FdbB:						
Fincastle-------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Depth to dense layer	0.50		
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
FdnA:						
Fincastle-------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Depth to dense layer	0.50		
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
Starks----------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	1.00		
	Depth to saturated zone	1.00				
	Shrink-swell	0.50				
GcaAK:						
Genesee---------	Very limited:		Somewhat limited:		Somewhat limited:	
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Frost action	0.50	Cutbanks cave	0.10		

Table 12, Part 2.--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
JcfG:						
Judyville-------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	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		
KnqD2:						
Kendallville----	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
LbrA:						
Lafayette-------	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	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
LdxAK:						
Landes----------	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
	Frost action	0.50	Flooding	0.60		
LfuAI:						
Lash------------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Frost action	0.50	Flooding	0.80		
LfzB2:						
Lauramie--------	Very limited:		Somewhat limited:		Not limited	
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
LugA:						
Loudonville-----	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Cutbanks cave	1.00	Depth to bedrock	0.42
	Shrink-swell	0.50	Depth to hard bedrock	1.00		
	Frost action	0.50				
	Depth to hard bedrock	0.42				
LugB2:						
Loudonville-----	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Cutbanks cave	1.00	Depth to bedrock	0.42
	Shrink-swell	0.50	Depth to hard bedrock	1.00		
	Frost action	0.50				
	Depth to hard bedrock	0.42				

Table 12, Part 2.--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
LugC2:						
Loudonville-----	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Cutbanks cave	1.00	Depth to bedrock	0.42
	Shrink-swell	0.50	Depth to hard bedrock	1.00	Slope	0.01
	Frost action	0.50	Slope	0.01		
	Depth to hard bedrock	0.42				
	Slope	0.01				
LuhC:						
Loudonville-----	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Shrink-swell	0.50	Cutbanks cave	0.10	Droughty	0.07
	Frost action	0.50	Slope	0.01	Slope	0.01
	Depth to hard bedrock	0.42				
	Slope	0.01				
MamA:						
Mahalasville----	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		
	Low strength	1.00				
	Shrink-swell	0.50				
MaoA:						
Mahalaland------	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		
	Low strength	1.00				
	Shrink-swell	0.50				
MapA:						
Mahalasville, bedrock substratum----	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		
	Low strength	1.00				
	Shrink-swell	0.50				
MecB2:						
Martinsville----	Very limited:		Somewhat limited:		Not limited	
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
MjuA:						
Mellott---------	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				

Table 12, Part 2.--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
MqlG:						
Minnehaha-------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10	Droughty	0.86
	Shrink-swell	0.50			Content of large stones	0.01
	Frost action	0.50				
MrcA:						
Mitiwanga-------	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	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Depth to hard bedrock	0.42				
ObmB2:						
Octagon---------	Very limited:		Very limited:		Not limited	
	Low strength	1.00	Depth to saturated zone	1.00		
	Frost action	0.50	Depth to dense layer	0.50		
			Cutbanks cave	0.10		
ObmC2:						
Octagon---------	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Depth to saturated zone	1.00	Slope	0.01
	Frost action	0.50	Depth to dense layer	0.50		
	Slope	0.01	Cutbanks cave	0.10		
			Slope	0.01		
ObxA:						
Ockley----------	Very limited:		Very limited:		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Frost action	0.50	Depth to dense layer	0.50		
	Shrink-swell	0.06				
ObxB2:						
Ockley----------	Very limited:		Very limited:		Not limited	
	Low strength	1.00	Cutbanks cave	1.00		
	Frost action	0.50	Depth to dense layer	0.50		
	Shrink-swell	0.06				
ObxC2:						
Ockley----------	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Cutbanks cave	1.00	Slope	0.01
	Frost action	0.50	Depth to dense layer	0.50		
	Shrink-swell	0.06	Slope	0.01		
	Slope	0.01				
ObxD2:						
Ockley----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Low strength	1.00	Slope	1.00		
	Frost action	0.50	Depth to dense layer	0.50		
	Shrink-swell	0.06				

Table 12, Part 2.--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
Pg:						
Pits, gravel	Not rated		Not rated		Not rated	
PgaA:						
Pella	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		
	Low strength	0.22				
PnwBQ:						
Pinevillage	Somewhat limited:		Very limited:		Somewhat limited:	
	Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.26
	Flooding	0.40			Content of large stones	0.05
PvsA:						
Princeton	Somewhat limited:		Very limited:		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
PvsB2:						
Princeton	Somewhat limited:		Very limited:		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
PvsC2:						
Princeton	Somewhat limited:		Very limited:		Somewhat limited:	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.01
	Slope	0.01	Slope	0.01		
RbfA:						
Ragsdale	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		
	Low strength	1.00				
	Shrink-swell	0.50				
RbuB2:						
Rainsville	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00		
	Frost action	0.50	Depth to dense layer	0.50		
	Low strength	0.22	Cutbanks cave	0.10		
RbuC2:						
Rainsville	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	0.01
	Frost action	0.50	Depth to dense layer	0.50		
	Low strength	0.22	Cutbanks cave	0.10		
	Slope	0.01	Slope	0.01		

Table 12, Part 2.--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
RdvA:						
Raub------------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	1.00				
	Shrink-swell	0.50				
RetA:						
Rensselaer------	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		
	Low strength	1.00				
	Shrink-swell	0.50				
RosAK:						
Rockmill--------	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	Content of organic matter	1.00	Flooding	0.60
	Flooding	1.00	Flooding	0.60		
			Cutbanks cave	0.10		
RqaE:						
Rodman----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.98
			Depth to dense layer	0.50		
RqaG:						
Rodman----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.98
			Depth to dense layer	0.50		
RtxAK:						
Rossburg--------	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
	Frost action	0.50	Flooding	0.60		
RuxA:						
Raub------------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	1.00				
	Shrink-swell	0.50				

Table 12, Part 2.--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
RuxA:						
Brenton	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	1.00		
	Depth to saturated zone	1.00				
	Shrink-swell	0.50				
RyfA:						
Rush	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
RyfB2:						
Rush	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
RywB2:						
Russell	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Depth to dense layer	0.50		
	Low strength	1.00	Depth to saturated zone	0.24		
	Shrink-swell	0.50	Cutbanks cave	0.10		
RywC2:						
Russell	Very limited:		Somewhat limited:		Somewhat limited:	
	Frost action	1.00	Depth to dense layer	0.50	Slope	0.01
	Low strength	1.00	Depth to saturated zone	0.24		
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Slope	0.01	Slope	0.01		
RywD2:						
Russell	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to dense layer	0.50		
	Low strength	1.00	Depth to saturated zone	0.24		
	Shrink-swell	0.50	Cutbanks cave	0.10		
RzcE:						
Russell	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to dense layer	0.50		
	Low strength	1.00	Depth to saturated zone	0.24		
	Shrink-swell	0.50	Cutbanks cave	0.10		
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.11

Table 12, Part 2.--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
SldAK:						
Shoals----------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.60	Flooding	0.60
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
	Low strength	0.78				
SlyA:						
Silverwood------	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
SlyB2:						
Silverwood------	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
SlzA:						
Silverwood------	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
SlzB2:						
Silverwood------	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
SlzC2:						
Silverwood------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Cutbanks cave	1.00	Slope	0.01
	Frost action	0.50	Slope	0.01		
	Slope	0.01				
SlzD2:						
Silverwood------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Cutbanks cave	1.00	Slope	1.00
	Shrink-swell	0.50	Slope	1.00		
	Frost action	0.50				
SngA:						
Sleeth----------	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	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
SnlAP:						
Southwest-------	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		
	Low strength	0.78				

Table 12, Part 2.--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
SobAI:						
Sloan	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
	Low strength	1.00				
	Shrink-swell	0.50				
Beaucoup	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
SseB2:						
St. Charles	Very limited:		Somewhat limited:		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
SteA:						
Starks	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	1.00		
	Depth to saturated zone	1.00				
	Shrink-swell	0.50				
SvqE:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.11
SvqG:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.10
SwdE:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.11
Rodman	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.98
			Depth to dense layer	0.50		
SwdG:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Droughty	0.10

Table 12, Part 2.--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
SwdG:						
Rodman----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.98
			Depth to dense layer	0.50		
TfdA:						
Throckmorton----	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Depth to saturated zone	1.00		
	Low strength	1.00	Depth to dense layer	0.50		
	Shrink-swell	0.50	Cutbanks cave	0.10		
TfdB:						
Throckmorton----	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Depth to saturated zone	1.00		
	Low strength	1.00	Depth to dense layer	0.50		
	Shrink-swell	0.50	Cutbanks cave	0.10		
ThrA:						
Treaty----------	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		
	Low strength	1.00				
	Shrink-swell	0.50				
TlxA:						
Toronto---------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Depth to dense layer	0.50		
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
TmcA:						
Totanang--------	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00	Depth to saturated zone	0.95		
	Shrink-swell	0.50				
UbyE:						
Udorthents------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10		
Uea:						
Urban land------	Not rated		Not rated		Not rated	
WkmA:						
Waupecan--------	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				

Table 12, Part 2.--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
WkmB2:						
Waupecan--------	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
WmnA:						
Waynetown-------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	1.00		
	Depth to saturated zone	1.00				
	Shrink-swell	0.50				
WmpA:						
Wea-------------	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
WmpB2:						
Wea-------------	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Cutbanks cave	1.00		
	Frost action	0.50				
WqvA:						
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		
WsuA:						
Whitaker--------	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	1.00		
	Low strength	0.78				
	Shrink-swell	0.50				
WtaA:						
Whitaker--------	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	1.00		
	Shrink-swell	0.50				
WufB2:						
Williamstown----	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Depth to dense layer	0.50		
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				

Table 12, Part 2.--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
WvaA:						
Wingate	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Depth to saturated zone	1.00		
	Low strength	1.00	Depth to dense layer	0.50		
	Shrink-swell	0.50	Cutbanks cave	0.10		
WvaB2:						
Wingate	Very limited:		Very limited:		Not limited	
	Frost action	1.00	Depth to saturated zone	1.00		
	Low strenght	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
XabA:						
Xenia	Very limited:		Very limited:		Somewhat limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Depth to dense layer	0.50		
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
	Shrink-swell	0.50				
XabB2:						
Xenia	Very limited:		Very limited:		Somewhat limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Depth to dense layer	0.50		
	Low strength		Cutbanks cave	0.10		
	Depth tp saturated zone	0.75				
	Shrink-swell	0.50				
XfuB2:						
Miami	Very limited:		Very limited:		Not limited	
	Low strength	1.00	Depth to saturated zone	1.00		
	Shrink-swell	0.50	Depth to dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
Rainsville	Somewhat limited:		Very limited:		Not limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00		
	Frost action	0.50	Depth to dense layer	0.50		
	Low strength	0.22	Cutbanks cave	0.10		
XfuC2:						
Miami	Very limited:		Very limited:		Somewhat limited:	
	Low strength	1.00	Depth to saturated zone	1.00	Slope	0.01
	Shrink-swell	0.50	Depth to dense layer	0.50		
	Frost action	0.50	Cutbanks cave	0.10		
	Slope	0.01	Slope	0.01		

Table 12, Part 2.--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
XfuC2:						
Rainsville------	Somewhat limited:		Very limited:		Somewhat limited:	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	0.01
	Frost action	0.50	Depth to dense layer	0.50		
	Low strength	0.22	Cutbanks cave	0.10		
	Slope	0.01	Slope	0.01		
YedA:						
Yeddo-----------	Very limited:		Very limited:		Very limited:	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	1.00				

Table 13, Part 1.--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 limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
AbfA:				
Adeland-------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Depth to hard bedrock	1.00
	Depth to bedrock	1.00	Seepage	0.53
AbhAI:				
Adrian--------------	Very limited:		Very limited:	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
AjaAI:				
Allison-------------	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
ApkA:				
Angatoka------------	Very limited:		Somewhat limited:	
	Filtering capacity	1.00	Seepage	0.53
	Restricted permeability	0.46		
AplA:				
Angatoka------------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
AplB2:				
Angatoka------------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.36
AplC2:				
Angatoka------------	Somewhat limited:		Very limited:	
	Restricted permeability	0.46	Slope	1.00
	Slope	0.01	Seepage	0.53

Table 13, Part 1.--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
AzqA:				
Ayrshire------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	0.46	Depth to saturated zone	1.00
BcgAI:				
Battleground--------	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	0.46	Seepage	0.53
BhyA:				
Birkbeck------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.94	Seepage	0.53
BhyB2:				
Birkbeck------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.94	Seepage	0.53
			Slope	0.36
BvlAK:				
Brouillett----------	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00
CbaA:				
Camden--------------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
CbaB2:				
Camden--------------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.36
CfrG:				
Cates---------------	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Seepage	1.00
			Depth to hard bedrock	1.00
ChqA:				
Chalmers------------	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53

Table 13, Part 1.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
CnaB:				
Coloma	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.36
CnaC:				
Coloma	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.16	Slope	1.00
CsuA:				
Crane	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
CudA:				
Crosby	Very limited:		Somewhat limited:	
	Restricted permeability	1.00	Depth to saturated zone	0.81
	Depth to saturated zone	1.00	Seepage	0.53
DpbA:				
Drummer	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
EcoA:				
Edwardsville	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
EdeAK:				
Eel	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00
Beckville	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
EmdA:				
Elston	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00

Table 13, Part 1.--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
EmdB:				
Elston	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.36
FamB:				
Fairpoint	Very limited:		Somewhat limited:	
	Restricted permeability	1.00	Slope	0.07
FdbA:				
Fincastle	Very limited:		Somewhat limited:	
	Restricted permeability	1.00	Depth to saturated zone	0.81
	Depth to saturated zone	1.00	Seepage	0.53
FdbB:				
Fincastle	Very limited:		Somewhat limited:	
	Restricted permeability	1.00	Depth to saturated zone	0.81
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.07
FdnA:				
Fincastle	Very limited:		Somewhat limited:	
	Restricted permeability	1.00	Depth to saturated zone	0.81
	Depth to saturated zone	1.00	Seepage	0.53
Starks	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
GcaAK:				
Genesee	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	0.46	Seepage	1.00
JcfG:				
Judyville	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Seepage	1.00
			Depth to hard bedrock	1.00
KnqD2:				
Kendallville	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53

Table 13, Part 1.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
LbrA:				
Lafayette----------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
LdxAK:				
Landes--------------	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
LfuAI:				
Lash----------------	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Filtering capacity	1.00	Seepage	1.00
LfzB2:				
Lauramie------------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.36
LugA:				
Loudonville---------	Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Restricted permeability	0.46	Seepage	0.53
LugB2:				
Loudonville---------	Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.36
LugC2:				
Loudonville---------	Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.01	Seepage	0.53
LuhC:				
Loudonville---------	Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to hard	1.00
	Slope	0.01	bedrock	1.00
			Slope	1.00
			Seepage	0.53
MamA:				
Mahalasville--------	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	0.46	Depth to saturated zone	1.00

Table 13, Part 1.--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
MaoA:				
Mahalaland----------	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
MapA:				
Mahalasville, bedrock substratum	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	0.46	Depth to saturated zone	1.00
	Depth to bedrock	0.30		
MecB2:				
Martinsville--------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.36
MjuA:				
Mellott-------------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
MqlG:				
Minnehaha-----------	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
			Seepage	1.00
MrcA:				
Mitiwanga-----------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Seepage	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Depth to hard bedrock	1.00
ObmB2:				
Octagon-------------	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.36
ObmC2:				
Octagon-------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	0.46	Depth to saturated zone	0.96
	Slope	0.01	Seepage	0.53

Table 13, Part 1.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
ObxA:				
Ockley----------------	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
ObxB2:				
Ockley----------------	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.36
	Restricted permeability	0.46		
ObxC2:				
Ockley----------------	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
			Slope	1.00
	Restricted permeability	0.46		
	Slope	0.01		
ObxD2:				
Ockley----------------	Very limited:		Very limited:	
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00		
	Restricted permeability	0.46		
Pg:				
Pits, gravel----------	Not rated		Not rated	
PgaA:				
Pella-----------------	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
PnwBQ:				
Pinevillage-----------	Somewhat limited:		Very limited:	
	Flooding	0.40	Seepage	1.00
			Slope	0.67
			Flooding	0.40
PvsA:				
Princeton-------------	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
PvsB2:				
Princeton-------------	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.36
	Restricted permeability	0.46		

Table 13, Part 1.--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
PvsC2:				
Princeton	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.01		
RbfA:				
Ragsdale	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
RbuB2:				
Rainsville	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
			Slope	0.36
RbuC2:				
Rainsville	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Slope	0.01	Seepage	0.53
RdvA:				
Raub	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Restricted permeability	1.00	Seepage	0.53
RetA:				
Rensselaer	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00
RosAK:				
Rockmill	Very limited:		Very limited:	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00

Table 13, Part 1.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Septic tank absorption fields: Value	Sewage lagoons: Rating class and limiting features	Sewage lagoons: Value
RqaE:				
Rodman	Very limited:		Very limited:	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
RqaG:				
Rodman	Very limited:		Very limited:	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
RtxAK:				
Rossburg	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Restricted permeability	0.46	Seepage	1.00
RuxA:				
Raub	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Restricted permeability	1.00	Seepage	0.53
Brenton	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
RyfA:				
Rush	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
RyfB2:				
Rush	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.36
RywB2:				
Russell	Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.65	Seepage	0.53
	Restricted permeability	0.46	Slope	0.36
			Depth to saturated zone	0.02
RywC2:				
Russell	Somewhat limited:		Very limited:	
	Depth to saturated zone	0.65	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
	Slope	0.01	Depth to saturated zone	0.02

Table 13, Part 1.--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
RywD2:				
Russell	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.65	Seepage	0.53
	Restricted permeability	0.46	Depth to saturated zone	0.02
RzcE:				
Russell	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.65	Seepage	0.53
	Restricted permeability	0.46	Depth to saturated zone	0.02
Strawn	Very limited:		Very limited:	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.53
SldAK:				
Shoals	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
SlyA:				
Silverwood	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
SlyB2:				
Silverwood	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.36
SlzA:				
Silverwood	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
SlzB2:				
Silverwood	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.36

Table 13, Part 1.--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
SlzC2:				
Silverwood----------	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.01		
SlzD2:				
Silverwood----------	Very limited:		Very limited:	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	0.46		
SngA:				
Sleeth--------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
SnlAP:				
Southwest-----------	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
SobAI:				
Sloan---------------	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.72	Seepage	0.28
Beaucoup------------	Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
SseB2:				
St. Charles---------	Somewhat limited:		Somewhat limited:	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.36
SteA:				
Starks--------------	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53

Table 13, Part 1.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
SvqE:				
Strawn	Very limited:		Very limited:	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.53
SvqG:				
Strawn	Very limited:		Very limited:	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.53
SwdE:				
Strawn	Very limited:		Very limited:	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.53
Rodman	Very limited:		Very limited:	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
SwdG:				
Strawn	Very limited:		Very limited:	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.53
Rodman	Very limited:		Very limited:	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
TfdA:				
Throckmorton	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
TfdB:				
Throckmorton	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
			Slope	0.07
ThrA:				
Treaty	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53

Table 13, Part 1.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
TlxA:				
Toronto	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Restricted permeability	0.46	Seepage	0.53
TmcA:				
Totanang	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
UbyE:				
Udorthents	Very limited:		Very limited:	
	Slope	1.00	Slope	1.00
Uea:				
Urban land	Not rated		Not rated	
WkmA:				
Waupecan	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
WkmB2:				
Waupecan	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.36
WmnA:				
Waynetown	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	0.53
	Restricted permeability	0.46		
WmpA:				
Wea	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46		
WmpB2:				
Wea	Very limited:		Very limited:	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.36

Table 13, Part 1.--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
WqvA:				
Westland	Very limited:		Very limited:	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
WsuA:				
Whitaker	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00
WtaA:				
Whitaker	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00
WufB2:				
Williamstown	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Restricted permeability	1.00	Seepage	0.53
			Slope	0.36
WvaA:				
Wingate	Very limited:		Very limited:	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
WvaB2:				
Wingate	Very limited:		Somewhat limited:	
	Restricted permeability	1.00	Depth to saturated zone	0.96
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.36
XabA:				
Xenia	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Restricted permeability	0.94	Seepage	0.53
XabB2:				
Xenia	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Restricted permeability	0.94	Seepage	0.53
			Slope	0.36

Table 13, Part 1.--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
XfuB2:				
Miami	Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	0.81
	Restricted permeability	1.00	Seepage	0.53
			Slope	0.36
Rainsville	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
			Slope	0.36
XfuC2:				
Miami	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.81
	Slope	0.01	Seepage	0.53
Rainsville	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Slope	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Slope	0.01	Seepage	0.53
YedA:				
Yeddo	Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53

Table 13, Part 2.--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 limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	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
AbfA:						
Adeland	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Hard to compact	1.00
					Too clayey	0.50
AbhAI:						
Adrian	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.16
	Content of organic matter	1.00				
AjaAI:						
Allison	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Flooding	1.00	Too clayey	0.50
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.11
	Too clayey	0.50				
ApkA:						
Angatoka	Very limited:		Not limited		Somewhat limited:	
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
AplA:						
Angatoka	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Too clayey	0.50
AplB2:						
Angatoka	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Too clayey	0.50
AplC2:						
Angatoka	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Too clayey	0.50	Slope	0.01	Too clayey	0.50
	Slope	0.01			Slope	0.01
AzqA:						
Ayrshire	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00				
BcgAI:						
Battleground	Very limited:		Very limited:		Not limited	
	Flooding	1.00	Flooding	1.00		

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
BhyA:						
Birkbeck------------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
BhyB2:						
Birkbeck------------	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
BvlAK:						
Brouillett----------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.22
	Seepage	1.00				
CbaA:						
Camden--------------	Not limited		Not limited		Not limited	
CbaB2:						
Camden--------------	Not limited		Not limited		Not limited	
CfrG:						
Cates---------------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
			Depth to bedrock	1.00	Gravel content	0.65
					Seepage	0.52
ChqA:						
Chalmers------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Hard to compact	1.00
					Too clayey	0.50
CnaB:						
Coloma--------------	Very limited:		Very limited:		Very limited:	
	Seepage	1.00	Seepage	1.00	Too Sandy	1.00
	Too Sandy	1.00			Seepage	1.00
CnaC:						
Coloma--------------	Very limited:		Very limited:		Very limited:	
	Seepage	1.00	Seepage	1.00	Too Sandy	1.00
	Too Sandy	1.00	Slope	0.16	Seepage	1.00
	Slope	0.16			Slope	0.16
CsuA:						
Crane---------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
CudA:						
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 clayey	0.50			Too clayey	0.50
DpbA:						
Drummer	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
EcoA:						
Edwardsville	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Too clayey	0.50
EdeAK:						
Eel	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Seepage	1.00	Seepage	1.00	Seepage	0.22
	Too clayey	0.50				
Beckville	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.52
	Seepage	1.00	Seepage	1.00		
EmdA:						
Elston	Very limited:		Very limited:		Very limited:	
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too Sandy	1.00			Too Sandy	0.50
EmdB:						
Elston	Very limited:		Very limited:		Very limited:	
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too Sandy	1.00			Too Sandy	0.50
FamB:						
Fairpoint	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Gravel content	0.76
					Too clayey	0.50
FdbA:						
Fincastle	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
FdbB:						
Fincastle	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
FdnA:						
Fincastle-----------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
Starks--------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
GcaAK:						
Genesee-------------	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Flooding	1.00	Seepage	0.22
	Seepage	1.00	Seepage	1.00		
JcfG:						
Judyville-----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
			Depth to bedrock	1.00	Seepage	0.52
					Gravel content	0.42
KnqD2:						
Kendallville--------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
LbrA:						
Lafayette-----------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00				
LdxAK:						
Landes--------------	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Flooding	1.00	Seepage	0.52
	Seepage	1.00	Seepage	1.00		
LfuAI:						
Lash----------------	Very limited:		Very limited:		Somewhat limited:	
	Flooding	1.00	Flooding	1.00	Seepage	0.52
	Seepage	1.00	Seepage	1.00		
LfzB2:						
Lauramie------------	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Too clayey	0.50
LugA:						
Loudonville---------	Very limited:		Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Too clayey	0.50			Too clayey	0.50
LugB2:						
Loudonville---------	Very limited:		Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Too clayey	0.50			Too clayey	0.50

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
LugC2:						
Loudonville---------	Very limited:		Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Too clayey	0.50	Slope	0.01	Too clayey	0.50
	Slope	0.01			Slope	0.01
LuhC:						
Loudonville---------	Very limited:		Very limited:		Very limited:	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	0.01	Slope	0.01	Too acid	1.00
					Slope	0.01
MamA:						
Mahalasville--------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00				
MaoA:						
Mahalaland----------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50	Seepage	1.00	Too clayey	0.50
MapA:						
Mahalasville, bedrock substratum	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to bedrock	1.00			Hard to compact	1.00
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
MecB2:						
Martinsville--------	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Too clayey	0.50
MjuA:						
Mellott-------------	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Too clayey	0.50
MqlG:						
Minnehaha-----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.52
	Too clayey	0.50			Too clayey	0.50
MrcA:						
Mitiwanga-----------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Seepage	1.00	Depth to saturated zone	1.00
	Too clayey	0.50	Depth to bedrock	1.00	Too clayey	0.50

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
ObmB2:						
Octagon	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
ObmC2:						
Octagon	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
	Slope	0.01	Slope	0.01	Slope	0.01
ObxA:						
Ockley	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
ObxB2:						
Ockley	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
ObxC2:						
Ockley	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50	Slope	0.01	Slope	0.01
	Slope	0.01				
ObxD2:						
Ockley	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
Pg:						
Pits, gravel	Not rated		Not rated		Not rated	
PgaA:						
Pella	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PnwBQ:						
Pinevillage	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Seepage	0.52
	Flooding	0.40	Flooding	0.40	Gravel content	0.52
PvsA:						
Princeton	Very limited:		Not limited		Not limited	
	Seepage	1.00				
PvsB2:						
Princeton	Very limited:		Not limited		Not limited	
	Seepage	1.00				
PvsC2:						
Princeton	Very limited:		Somewhat limited:		Somewhat limited:	
	Seepage	1.00	Slope	0.01	Slope	0.01
	Slope	0.01				

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
RbfA:						
Ragsdale	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
RbuB2:						
Rainsville	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
RbuC2:						
Rainsville	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
	Slope	0.01	Slope	0.01	Slope	0.01
RdvA:						
Raub	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
RetA:						
Rensselaer	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
RosAK:						
Rockmill	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Content of organic matter	1.00				
RqaE:						
Rodman	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.52
RqaG:						
Rodman	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.52
RtxAK:						
Rossburg	Very limited:		Very limited:		Not limited	
	Flooding	1.00	Flooding	1.00		
	Seepage	1.00				

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
RuxA:						
Raub	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
Brenton	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
RyfA:						
Rush	Very limited:		Not limited		Somewhat limited:	
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
RyfB2:						
Rush	Very limited:		Not limited		Somewhat limited:	
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
RywB2:						
Russell	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Too clayey	0.50
RywC2:						
Russell	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Too clayey	0.50	Slope	0.01	Too clayey	0.50
	Slope	0.01			Slope	0.01
RywD2:						
Russell	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
RzcE:						
Russell	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
SldAK:						
Shoals	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
SlyA:						
Silverwood	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Gravel content	0.79
					Seepage	0.22
SlyB2:						
Silverwood	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Gravel content	0.80
					Seepage	0.22

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
SlzA:						
Silverwood----------	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Gravel content	0.79
					Seepage	0.22
SlzB2:						
Silverwood----------	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Gravel content	0.80
					Seepage	0.22
SlzC2:						
Silverwood----------	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Gravel content	0.80
	Slope	0.01	Slope	0.01	Seepage	0.22
					Slope	0.01
SlzD2:						
Silverwood----------	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Gravel content	0.81
					Seepage	0.22
SngA:						
Sleeth--------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
SnlAP:						
Southwest-----------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
SobAI:						
Sloan---------------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
Beaucoup------------	Very limited:		Very limited:		Very limited:	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Too clayey	0.50				
SseB2:						
St. Charles---------	Somewhat limited:		Not limited		Somewhat limited:	
	Too clayey	0.50			Too clayey	0.50
SteA:						
Starks--------------	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
SvqE:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
SvqG:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
SwdE:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
Rodman	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.52
SwdG:						
Strawn	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
Rodman	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.52
TfdA:						
Throckmorton	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
TfdB:						
Throckmorton	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
ThrA:						
Treaty	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
TlxA:						
Toronto	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
TmcA:						
Totanang	Very limited:		Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.52
	Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.11
UbyE:						
Udorthents	Very limited:		Very limited:		Very limited:	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
Uea:						
Urban land	Not rated		Not rated		Not rated	
WkmA:						
Waupecan	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
					Seepage	0.22
WkmB2:						
Waupecan	Very limited:		Very limited:		Somewhat limited:	
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
					Seepage	0.22
WmnA:						
Waynetown	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Too clayey	0.50
WmpA:						
Wea	Very limited:		Not limited		Not limited	
	Seepage	1.00				
WmpB2:						
Wea	Very limited:		Not limited		Somewhat limited:	
	Seepage	1.00			Gravel content	0.01
WqvA:						
Westland	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WsuA:						
Whitaker	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
WtaA:						
Whitaker	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
WufB2:						
Williamstown	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
WvaA:						
Wingate	Very limited:		Very limited:		Somewhat limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
	Too clayey	0.50				

Table 13, Part 2.--Sanitary Facilities--Continued

Map symbol and soil name	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
WvaB2:						
Wingate	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.32	Too clayey	0.50
	Too clayey	0.50	Depth to saturated zone	0.19	Depth to saturated zone	0.47
	Depth to saturated zone	0.32				
XabA:						
Xenia	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
XabB2:						
Xenia	Very limited:		Very limited:		Very limited:	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
XfuB2:						
Miami	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50			Depth to saturated zone	0.47
Rainsville	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
XfuC2:						
Miami	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Too clayey	0.50
	Too clayey	0.50	Slope	0.01	Depth to saturated zone	0.47
	Slope	0.01			Slope	0.01
Rainsville	Somewhat limited:		Somewhat limited:		Somewhat limited:	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
	Slope	0.01	Slope	0.01	Slope	0.01
YedA:						
Yeddo	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 14.--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
AbfA:				
Adeland	Poor: depth to rock, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
AbhAI:				
Adrian	Poor: wetness.	Probable	Improbable: too sandy.	Poor: excess humus, wetness.
AjaAI:				
Allison	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
ApkA:				
Angatoka	Poor: low strength.	Probable	Probable	Fair: too clayey.
AplA:				
Angatoka	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
AplB2:				
Angatoka	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
AplC2:				
Angatoka	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
AzqA:				
Ayrshire	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
BcgAI:				
Battleground	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
BhyA:				
Birkbeck	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
BhyB2:				
Birkbeck	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
BvlAK:				
Brouillett	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
CbaA:				
Camden	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
CbaB2:				
Camden	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CfrG:				
Cates	Poor: depth to rock, slope.	Improbable: excess fines, large stones.	Improbable: excess fines, large stones.	Poor: slope, small stones.
ChqA:				
Chalmers	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
CnaB:				
Coloma	Good	Probable	Improbable: too sandy.	Poor: too sandy.
CnaC:				
Coloma	Good	Probable	Improbable: too sandy.	Poor: too sandy.
CsuA:				
Crane	Poor: wetness.	Probable	Probable	Poor: wetness.
CudA:				
Crosby	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
DpbA:				
Drummer	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
EcoA:				
Edwardsville	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
EdeAK:				
Eel	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Beckville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
EmdA:				
Elston	Good	Probable	Improbable: too sandy.	Good.
EmdB:				
Elston	Good	Probable	Improbable: too sandy.	Good.
FamB:				
Fairpoint	Fair: large stones, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, small stones.
FdbA:				
Fincastle	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
FdbB:				
Fincastle	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
FdnA:				
Fincastle	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Starks	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
GcaAK:				
Genesee	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
JcfG:				
Judyville	Poor: depth to rock, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope, small stones.
KnqD2:				
Kendallville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
LbrA:				
Lafayette	Poor: wetness.	Probable	Probable	Poor: wetness.
LdxAK:				
Landes	Good	Probable	Improbable: too sandy.	Good.
LfuAI:				
Lash	Good	Probable	Improbable: too sandy.	Good.
LfzB2:				
Lauramie	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
LugA:				
Loudonville	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, depth to rock, too clayey.
LugB2:				
Loudonville	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, depth to rock, too clayey.
LugC2:				
Loudonville	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, depth to rock, slope, too clayey.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
LuhC:				
Loudonville	Poor: depth to rock, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, depth to rock, slope, too clayey.
MamA:				
Mahalasville	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
MaoA:				
Mahalaland	Poor: low strength, wetness.	Probable	Probable	Poor: wetness.
MapA:				
Mahalasville, bedrock substratum	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
MecB2:				
Martinsville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
MjuA:				
Mellott	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
MqlG:				
Minnehaha	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
MrcA:				
Mitiwanga	Poor: depth to rock, low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
ObmB2:				
Octagon	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey.
ObmC2:				
Octagon	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, slope, too clayey.
ObxA:				
Ockley	Poor: low strength.	Probable	Probable	Poor: area reclaim.
ObxB2:				
Ockley	Poor: low strength.	Probable	Probable	Poor: area reclaim.
ObxC2:				
Ockley	Poor: low strength.	Probable	Probable	Poor: area reclaim.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
ObxD2:				
Ockley	Poor: low strength.	Probable	Probable	Poor: area reclaim, slope.
Pg:				
Pits, gravel.				
PgaA:				
Pella	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
PnwBQ:				
Pinevillage	Fair: large stones.	Probable	Probable	Poor: area reclaim, small stones.
PvsA:				
Princeton	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
PvsB2:				
Princeton	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
PvsC2:				
Princeton	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
RbfA:				
Ragsdale	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
RbuB2:				
Rainsville	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
RbuC2:				
Rainsville	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.
RdvA:				
Raub	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
RetA:				
Rensselaer	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
RosAK:				
Rockmill	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
RqaE:				
Rodman	Fair: slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
RqaG:				
Rodman	Poor: slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
RtxAK:				
Rossburg	Good	Improbable: excess fines.	Improbable: excess fines.	Good.
RuxA:				
Raub	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Brenton	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
RyfA:				
Rush	Poor: low strength.	Probable	Probable	Fair: area reclaim.
RyfB2:				
Rush	Poor: low strength.	Probable	Probable	Fair: area reclaim.
RywB2:				
Russell	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
RywC2:				
Russell	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, too clayey.
RywD2:				
Russell	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
RzcE:				
Russell	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Strawn	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
SldAK:				
Shoals	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
SlyA:				
Silverwood	Fair: shrink-swell.	Probable	Probable	Poor: area reclaim, small stones.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
SlyB2:				
Silverwood	Fair: shrink-swell.	Probable	Probable	Poor: area reclaim, small stones.
SlzA:				
Silverwood	Fair: shrink-swell.	Probable	Probable	Poor: area reclaim, small stones.
SlzB2:				
Silverwood	Fair: shrink-swell.	Probable	Probable	Poor: area reclaim, small stones.
SlzC2:				
Silverwood	Fair: shrink-swell.	Probable	Probable	Poor: area reclaim, small stones.
SlzD2:				
Silverwood	Fair: shrink-swell, slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
SngA:				
Sleeth	Poor: low strength, wetness.	Probable	Probable	Poor: wetness.
SnlAP:				
Southwest	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
SobAI:				
Sloan	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Beaucoup	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
SseB2:				
St. Charles	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
SteA:				
Starks	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
SvqE:				
Strawn	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
SvqG:				
Strawn	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
SwdE:				
Strawn	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Rodman	Fair: slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
SwdG:				
Strawn	Poor: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Rodman	Poor: slope.	Probable	Probable	Poor: area reclaim, slope, small stones.
TfdA:				
Throckmorton	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
TfdB:				
Throckmorton	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
ThrA:				
Treaty	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
TlxA:				
Toronto	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
TmcA:				
Totanang	Fair: wetness.	Probable	Probable	Fair: area reclaim, too clayey.
UbyE:				
Udorthents.				
Uea:				
Urban land.				
WkmA:				
Waupecan	Fair: shrink-swell.	Probable	Probable	Fair: area reclaim.
WkmB2:				
Waupecan	Fair: shrink-swell.	Probable	Probable	Fair: area reclaim.
WmnA:				
Waynetown	Poor: low strength, wetness.	Probable	Probable	Poor: wetness.
WmpA:				
Wea	Fair: shrink-swell.	Probable	Probable	Poor: small stones.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
WmpB2:				
Wea	Fair: shrink-swell.	Probable	Probable	Poor: small stones.
WqvA:				
Westland	Poor: wetness.	Probable	Probable	Poor: wetness.
WsuA:				
Whitaker	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
WtaA:				
Whitaker	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
WufB2:				
Williamstown	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey.
WvaA:				
Wingate	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
WvaB2:				
Wingate	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
XabA:				
Xenia	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
XabB2:				
Xenia	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
XfuB2:				
Miami	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, too clayey.
Rainsville	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, too clayey.
XfuC2:				
Miami	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, slope, too clayey.
Rainsville	Fair: low strength, shrink-swell, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope, small stones, too clayey.

Table 14.--Construction Materials--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
YedA:				
Yeddo--------------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.

Table 15.--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*	
AbfA:												
Adeland---------	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-90	20-40	5-15
	10-13	Silty clay loam, silty clay.	CL, CH	A-7-6	0	0	98-100	95-100	85-100	70-90	35-60	10-35
	13-29	Clay loam, clay--	CH, CL	A-7-6, A-7, A-6	0	0	98-100	95-100	90-100	70-90	30-70	15-40
	29-34	Channery clay loam, channery silty clay loam, silty clay, silty clay loam.	CH, CL	A-7, A-7-6	0-1	0-5	80-100	50-98	50-95	50-90	40-70	15-45
	34-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
AbhAI:												
Adrian----------	0-36	Muck-------------	PT	A-8	0	0	---	---	---	---	---	---
	36-60	Sand, gravelly loamy sand.	SP, SM, SP-SM	A-3	0	0	90-100	85-98	55-80	0-15	0-0	NP
AjaAI:												
Allison---------	0-18	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	75-100	20-40	5-15
	18-51	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	75-100	20-50	5-25
	51-80	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	75-100	25-55	5-25
ApkA:												
Angatoka--------	0-9	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	97-100	90-95	20-30	4-10
	9-78	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7-6, A-4	0	0	100	100	95-100	85-95	25-45	5-25
	78-80	Stratified gravelly coarse sand to sand.	SW-SM, SW	A-1-b, A-2-4	0-1	0-5	65-85	50-85	25-50	0-15	0-0	NP
AplA:												
Angatoka--------	0-8	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	97-100	90-95	20-30	4-10
	8-62	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7-6, A-4	0	0	100	100	95-100	85-95	25-45	5-25
	62-70	Clay loam, loam, silty clay loam.	CL-ML, ML, CL	A-4, A-6	0	0	90-100	85-100	75-95	55-80	20-50	3-30
	70-80	Loam-------------	CL, CL-ML, ML	A-4, A-6	0	0-1	90-100	80-98	75-90	45-80	15-30	3-15
AplB2:												
Angatoka--------	0-7	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	97-100	90-95	20-30	4-10
	7-62	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7-6, A-4	0	0	100	100	95-100	85-95	25-45	5-25
	62-70	Clay loam, loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	0	90-100	85-100	75-95	55-80	20-50	3-30
	70-80	Loam-------------	ML, CL-ML, CL	A-4, A-6	0	0-1	90-100	80-98	75-90	45-80	15-30	3-15
AplC2:												
Angatoka--------	0-4	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	97-100	90-100	20-30	4-10
	4-10	Silt, silt loam--	CL-ML, CL	A-4	0	0	100	100	97-100	90-100	20-30	4-10
	10-62	Silty clay loam, silt loam.	CL-ML, CL	A-6, A-7-6, A-4	0	0	100	100	95-100	85-100	25-45	5-25
	62-70	Clay loam, loam, silty clay loam.	ML, CL, CL-ML	A-4, A-6	0	0	90-100	85-100	75-95	55-80	20-50	3-30
	70-80	Loam-------------	CL, CL-ML, ML	A-4, A-6	0	0-1	90-100	80-98	75-90	45-80	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				*Pct*	*Pct*					*Pct*	
AzqA:												
Ayrshire	0-12	Loam, fine sandy loam.	CL, SC, SC-SM, CL-ML	A-4, A-6	0	0	100	100	80-100	25-55	15-40	NP-20
	12-44	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	0	100	100	70-100	20-55	20-50	NP-30
	44-80	Stratified very fine sand to sandy loam to silt.	SC, SC-SM	A-2-4, A-4	0	0	100	100	80-100	25-50	10-25	NP-10
BcgAI:												
Battleground	0-10	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	75-100	20-40	5-15
	10-19	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	95-100	75-100	20-50	5-25
	19-80	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	20-50	5-25
BhyA:												
Birkbeck	0-10	Silt loam	ML, CL-ML, CL	A-4	0	0	100	100	97-100	85-100	20-35	4-10
	10-16	Silt loam	ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	30-40	7-15
	16-55	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7	0	0	100	95-100	95-100	85-100	25-45	5-25
	55-60	Loam, clay loam	ML, CL-ML, CL	A-4, A-6	0	0-1	95-100	90-100	85-95	55-70	20-50	3-30
	60-66	Loam	ML, CL-ML, CL	A-4, A-6	0	0-1	90-100	85-98	75-90	45-70	15-30	3-15
BhyB2:												
Birkbeck	0-10	Silt loam	CL-ML, ML, CL	A-4	0	0	100	100	97-100	85-100	20-35	4-10
	10-16	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	85-100	30-40	7-15
	16-55	Silty clay loam, silt loam.	CL, CL-ML	A-6, A-7	0	0	100	95-100	95-100	85-100	25-45	5-25
	55-60	Loam, clay loam	CL-ML, ML, CL	A-4, A-6	0	0-1	95-100	90-100	85-95	55-70	20-50	3-30
	60-66	Loam	ML, CL-ML, CL	A-4, A-6	0	0-1	90-100	85-98	75-90	45-70	15-30	3-15
BvlAK:												
Brouillett	0-11	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	90-100	90-100	80-100	65-95	20-35	3-12
	11-26	Silt loam, loam, silty clay loam.	CL-ML, ML, CL	A-4, A-6, A-7	0	0	90-100	90-100	70-100	55-95	22-45	3-20
	26-42	Silt loam, loam, clay loam.	CL, CL-ML	A-6	0	0	90-100	90-100	70-100	55-95	20-40	3-20
	42-60	Stratified sandy loam to silt loam.	CL, ML, SC-SM	A-2-4, A-4, A-6	0	0	85-100	75-100	60-100	25-100	10-35	NP-12
CbaA:												
Camden	0-9	Silt loam	CL, CL-ML	A-4	0	0	100	100	95-100	85-100	20-35	4-10
	9-29	Silt loam, silty clay loam.	CL	A-4, A-6, A-7-6	0	0	100	100	95-100	85-100	30-50	5-25
	29-64	Fine sandy loam, sandy loam, loam, silt loam.	SC, CL, SC-SM, SM	A-2-4, A-4, A-6	0	0	85-100	85-100	55-90	25-60	10-40	NP-20
	64-70	Stratified sandy loam to silt loam.	ML, SM	A-2-4, A-4	0	0	90-100	80-100	55-100	25-100	10-40	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
CbaB2:												
Camden----------	0-9	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	95-100	85-100	20-35	4-10
	9-29	Silt loam, silty clay loam.	CL	A-7-6, A-4, A-6	0	0	100	100	95-100	85-100	30-50	5-25
	29-64	Fine sandy loam, sandy loam, loam, silt loam.	CL, SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	85-100	85-100	55-90	25-60	10-40	NP-20
	64-70	Stratified sandy loam to silt loam.	SM, ML	A-2-4, A-4	0	0	90-100	80-100	55-100	25-100	10-40	NP-10
CfrG:												
Cates-----------	0-4	Channery silt loam.	CL-ML, ML	A-4	0	0-10	80-100	50-100	50-100	50-100	0-25	2-7
	4-26	Channery loam, channery silt loam, very channery loam, very channery silt loam.	GC-GM, GM, ML, CL-ML	A-1, A-2-4, A-4	0	0-10	35-80	35-80	25-75	20-70	0-25	3-7
	26-36	Extremely channery clay loam, very channery silt loam, extremely channery loam.	GM, GC-GM	A-1, A-2-4, A-4	0	0-10	35-60	35-60	20-55	20-50	0-25	3-7
	36-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
ChqA:												
Chalmers--------	0-9	Silty clay loam--	CL, ML, CH	A-6, A-7-6	0	0	100	100	95-100	85-100	35-55	10-30
	9-13	Silty clay loam, silt loam.	ML, CL, CH	A-6, A-7-6	0	0	100	100	95-100	85-100	35-55	10-30
	13-30	Silty clay loam, silt loam.	CL, CH	A-4, A-6, A-7-6	0	0	100	100	90-100	80-100	25-65	5-40
	30-45	Loam, clay loam--	CL, CL-ML	A-4, A-6, A-7-6	0	0-1	95-100	90-100	85-95	55-80	20-50	5-30
	45-60	Loam, silt loam--	CL, CL-ML	A-4, A-6	0-1	0-3	90-100	85-98	75-90	45-70	15-30	4-15
CnaB:												
Coloma----------	0-8	Loamy sand-------	SP-SM, SM	A-2-4	0	0	95-100	85-100	55-90	0-25	0-0	NP
	8-28	Sand, loamy sand.	SM, SP, SP-SM	A-2-4, A-3	0	0	95-100	85-100	55-90	0-25	0-0	NP
	28-60	Stratified sand to loamy sand to sandy loam.	SC-SM, SM, SP, SP-SM	A-2-4, A-3, A-4	0	0-1	80-100	75-100	55-98	0-40	0-30	NP-10
CnaC:												
Coloma----------	0-8	Loamy sand-------	SP-SM, SM	A-2-4	0	0	95-100	85-100	55-90	0-25	0-0	NP
	8-28	Sand, loamy sand.	SP-SM, SP, SM	A-2-4, A-3	0	0	95-100	85-100	55-90	0-25	0-0	NP
	28-60	Stratified sand to loamy sand to sandy loam.	SC-SM, SM, SP, SP-SM	A-2-4, A-3, A-4	0	0-1	80-100	75-100	55-98	0-40	0-30	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
CsuA:												
Crane-----------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	75-100	50-90	20-40	3-15
	10-15	Loam, silt loam--	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	75-100	50-90	20-40	3-15
	15-36	Clay loam, loam--	CL, CL-ML	A-4, A-6	0	0-1	85-100	75-100	60-95	40-75	20-60	5-30
	36-53	Gravelly sandy clay loam, gravelly sandy loam.	SC, SC-SM, SM	A-2-4, A-2-6	0-1	0-3	60-90	50-75	30-60	15-35	10-60	NP-20
	53-60	Stratified gravelly coarse sand to very gravelly loamy coarse sand.	SW, SW-SM	A-1, A-1-b	0-1	0-3	65-85	50-75	25-50	0-10	0-0	NP
CudA:												
Crosby----------	0-8	Silt loam--------	CL-ML, ML, CL	A-4, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	8-11	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	92-100	80-95	60-85	15-40	3-15
	11-14	Silt loam, silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	0	95-100	92-100	80-95	60-85	20-40	3-20
	14-28	Clay loam, silty clay loam, silty clay.	CL, CH	A-7-6, A-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Loam, fine sandy loam, clay loam.	SC, ML, SM, CL	A-4, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Loam, fine sandy loam.	SM, CL, ML, SC	A-4, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15
DpbA:												
Drummer---------	0-15	Silty clay loam--	CL	A-6, A-7, A-7-6	0	0	100	100	95-100	85-100	35-50	10-30
	15-49	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	85-100	25-45	5-25
	49-57	Loam, silt loam, sandy loam.	CL	A-6	0	0	100	90-100	90-100	50-80	10-40	NP-25
	57-65	Stratified loamy sand to silty clay loam.	SC, CL	A-4, A-6	0	0	100	80-100	80-100	45-80	10-35	NP-15
EcoA:												
Edwardsville----	0-16	Silt loam--------	CL, ML	A-6	0	0	100	100	98-100	85-100	28-40	5-20
	16-41	Silt loam, silty clay loam.	ML, CL	A-6, A-7-6	0	0	100	100	98-100	85-100	30-45	5-20
	41-80	Silt loam--------	CL, ML	A-6	0	0	100	100	98-100	95-100	28-35	NP-15
EdeAK:												
Eel-------------	0-10	Silt loam, loam--	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-100	20-40	3-15
	10-34	Silt loam, loam, clay loam.	CL, ML, CL-ML	A-4, A-6, A-7-6	0	0	100	100	90-100	55-85	20-50	3-30
	34-60	Stratified loamy sand to silty clay loam.	CL, ML, SC, SM	A-2-4, A-4, A-6, A-7-6	0	0	90-100	80-100	50-95	20-75	0-50	NP-25
Beckville-------	0-11	Loam, silt loam--	CL-ML, ML	A-4	0	0	100	98-100	90-100	55-80	20-30	NP-10
	11-28	Sandy loam, loam, fine sandy loam.	CL-ML, SC-SM, SM, ML	A-2-4, A-4	0	0	100	95-100	85-100	30-80	10-30	NP-10
	28-60	Sandy loam, loam.	SC-SM, SM, CL-ML, ML	A-2-4, A-4	0	0-1	100	80-100	80-100	25-80	10-30	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
EmdA:												
Elston----------	0-10	Sandy loam-------	SC-SM	A-2-4	0	0	100	100	80-90	25-40	0-25	NP-10
	10-20	Fine sandy loam, loam, sandy loam.	SC-SM	A-2-4	0	0	100	100	80-90	25-40	0-25	NP-10
	20-45	Sandy loam, loam, loamy sand, sandy clay loam.	SC, SM, SC-SM, ML, CL-ML	A-4	0	0	95-100	95-98	60-85	10-65	0-40	NP-20
	45-72	Loamy sand, sand.	SP-SM, SM	A-2-4, A-3	0	0	90-100	85-98	55-90	0-25	0-20	NP
	72-80	Stratified sand to gravelly sand.	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	50-98	50-95	0-15	0-0	NP
EmdB:												
Elston----------	0-12	Sandy loam-------	SC-SM	A-2-4	0	0	100	100	80-90	25-40	0-25	NP-10
	12-30	Sandy loam, loam, loamy sand.	SC, SC-SM, ML, CL-ML, SM	A-4	0	0	95-100	95-98	60-85	10-65	0-40	NP-20
	30-48	Loamy sand, sand.	SM, SP-SM	A-2-4, A-3	0	0	90-100	85-98	55-90	0-25	0-20	NP
	48-60	Stratified sand to gravelly sand.	SM, SP-SM	A-2-4, A-3	0	0-3	90-100	50-98	50-95	0-15	0-0	NP
FamB:												
Fairpoint-------	0-5	Gravelly clay loam.	CL, GC, SC	A-6, A-7, A-7-6	0	5-15	55-90	45-85	40-85	35-80	35-50	12-24
	5-60	Gravelly clay loam, extremely channery silt loam.	SC, GC, CL-ML, CL	A-4, A-5, A-6, A-7	0	15-30	55-75	25-65	20-65	15-60	25-50	4-24
FdbA:												
Fincastle-------	0-10	Silt loam--------	CL-ML, CL	A-4, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	10-13	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	13-27	Silty clay loam, silt loam.	CL, CH	A-6, A-7, A-7-6	0	0	100	98-100	90-100	75-94	35-55	15-35
	27-50	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	85-100	85-95	55-80	30-50	10-30
	50-59	Loam, clay loam--	CL-ML, CL	A-4, A-6	0	0-1	90-100	85-100	75-95	55-80	20-50	3-30
	59-80	Loam, fine sandy loam.	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-1	90-100	80-95	75-90	45-70	15-30	3-15
FdbB:												
Fincastle-------	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	10-13	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	13-27	Silty clay loam, silt loam.	CH, CL	A-6, A-7, A-7-6	0	0	100	98-100	90-100	75-94	35-55	15-35
	27-50	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	85-100	85-95	55-80	30-50	10-30
	50-59	Loam, clay loam--	CL-ML, CL	A-4, A-6	0	0-1	90-100	85-100	75-95	55-80	20-50	3-30
	59-80	Loam, fine sandy loam.	CL, CL-ML, SC-SM, SC	A-4, A-6	0	0-1	90-100	80-95	75-90	45-70	15-30	3-15
FdnA:												
Fincastle-------	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	10-13	Silt loam--------	CL-ML, CL	A-4, A-6	0	0	100	98-100	90-100	75-94	20-35	4-14
	13-27	Silty clay loam, silt loam.	CL, CH	A-6, A-7, A-7-6	0	0	100	98-100	90-100	75-94	35-55	15-35
	27-50	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	85-100	85-95	55-80	30-50	10-30
	50-59	Loam, clay loam--	CL, CL-ML	A-4, A-6	0	0-1	90-100	85-100	75-95	55-80	20-50	3-30
	59-80	Loam, fine sandy loam.	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-1	90-100	80-95	75-90	45-70	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
FdnA:												
Starks----------	0-11	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	97-100	75-94	20-30	4-10
	11-36	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-94	35-45	15-25
	36-49	Clay loam, loam, silty clay loam, silt loam, sandy loam.	SC-SM, SC, CL, CL-ML	A-4, A-6	0	0	100	95-100	90-100	40-80	15-45	4-25
	49-60	Stratified loamy sand to loam to silt loam to sandy clay loam.	CL, SC-SM, SC, CL-ML	A-2, A-4, A-6	0	0	100	80-100	80-100	30-85	0-40	NP-20
GcaAK:												
Genesee---------	0-8	Loam, silt loam--	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-100	20-40	3-15
	8-32	Silt loam, loam--	CL, CL-ML	A-6, A-4	0	0	100	100	85-100	60-90	23-30	7-11
	32-60	Stratified sandy loam to silt loam.	CL, ML, SC-SM	A-2-4, A-4, A-6	0	0	85-100	82-100	60-100	25-100	10-35	NP-12
JcfG:												
Judyville-------	0-5	Fine sandy loam--	SC-SM, SC, SM	A-4	0	0	92-100	70-100	70-90	45-60	0-25	NP-10
	5-9	Channery sandy loam, fine sandy loam, sandy loam.	SC, SC-SM, SM	A-4	0	0	92-100	70-100	70-90	45-60	0-25	NP-10
	9-34	Very channery fine sandy loam, very channery sandy loam, extremely channery fine sandy loam, extremely channery sandy loam.	SC-SM, SC, GC-GM, GC	A-1, A-2-4, A-1-b	0-2	0-10	20-90	20-75	18-55	10-25	10-30	NP-10
	34-38	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
KnqD2:												
Kendallville----	0-7	Silt loam--------	CL-ML, ML, CL	A-4, A-6	0	0-5	90-100	80-100	75-95	75-90	20-40	3-15
	7-11	Silt loam, silty clay loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	25-40	5-15
	11-34	Clay, clay loam, gravelly loam, sandy clay loam.	CL-ML, CL, GC	A-6, A-4	0	0-5	70-100	60-95	50-80	45-75	25-40	5-15
	34-60	Clay loam, gravelly loam, loam.	CL, CL-ML, ML	A-4, A-6	0	0-5	90-100	80-95	60-90	55-75	20-35	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
LbrA:												
Lafayette-------	0-13	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-94	20-40	3-15
	13-33	Silt loam, silty clay loam.	CL, ML	A-4, A-6, A-7	0	0	100	98-100	90-100	75-94	20-50	3-25
	33-47	Sandy clay loam--	SC, CL	A-2-6, A-6	0	0-1	90-95	75-90	45-80	20-50	20-50	5-20
	47-61	Gravelly loam, gravelly sandy loam.	SC-SM, SC	A-1-b, A-2-4, A-2-6	0-1	0-3	60-90	50-75	30-55	15-40	10-40	3-20
	61-70	Gravelly coarse sand, gravelly loamy coarse sand, very gravelly coarse sand.	SW, GW-GM, SW-SM	A-1, A-1-a	0-2	0-5	45-65	25-65	10-20	0-10	0-0	NP
LdxAK:												
Landes----------	0-10	Fine sandy loam, sandy loam.	SC, SC-SM, SM	A-2-4, A-4	0	0	100	70-100	70-100	30-45	0-25	NP-10
	10-38	Fine sandy loam, loam, loamy fine sand, sandy loam.	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	100	85-100	80-100	20-45	0-40	NP-15
	38-60	Stratified loamy sand to silt loam.	SM, SC	A-2-4, A-4, A-6	0	0	100	85-100	70-100	5-45	0-40	NP-15
LfuAI:												
Lash-----------	0-10	Fine sandy loam--	SC, SC-SM, SM	A-2, A-4	0	0	100	95-100	85-100	30-45	10-25	NP-10
	10-18	Fine sandy loam, loam, silt loam.	SC-SM, SM, SC	A-2, A-4	0	0	100	95-100	85-100	30-45	10-25	NP-10
	18-40	Loam, loamy sand, silt loam, sandy loam.	SM, SC-SM	A-2, A-4	0	0	100	85-100	60-100	30-45	10-25	NP-10
	40-60	Stratified loamy sand to sandy loam.	SC, SM, SC-SM	A-2, A-4	0	0	100	95-100	60-100	30-45	0-30	NP-10
LfzB2:												
Lauramie--------	0-8	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-90	20-40	3-15
	8-19	Silty clay loam, silt loam.	CL, ML	A-4, A-6, A-7-6	0	0	100	100	90-100	75-90	25-50	3-35
	19-51	Clay loam, loam, sandy clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0	90-100	90-100	75-100	45-90	20-50	5-30
	51-58	Sandy clay loam, loam.	CL-ML, SC, SM, SC-SM	A-4	0	0-1	90-100	85-95	65-80	40-55	15-25	3-10
	58-70	Fine sandy loam--	SC-SM, CL-ML, SC, SM	A-4	0-1	0-3	90-100	85-95	65-80	40-55	15-25	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
LugA:												
Loudonville-----	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	85-100	75-98	60-90	40-60	20-40	5-20
	10-24	Clay loam, silty clay loam.	CL, CL-ML	A-6, A-7	0	0	80-100	75-98	70-95	50-85	20-50	5-30
	24-31	Gravelly silty clay loam, silty clay loam, gravelly clay loam, clay loam.	CL, SC	A-6, A-7-6	0-1	0-3	80-100	50-98	50-90	40-70	40-50	20-25
	31-36	Very channery clay loam, channery clay loam, very channery silty clay loam, channery silty clay loam.	GC, SC, CH, CL	A-6, A-7-6	0-2	0-5	40-80	35-70	30-60	25-60	40-60	20-40
	36-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
LugB2:												
Loudonville-----	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	85-100	75-98	60-90	40-60	20-40	5-20
	8-24	Clay loam, silty clay loam.	CL, CL-ML	A-6, A-7	0	0	80-100	75-98	70-95	50-85	20-50	5-30
	24-31	Gravelly silty clay loam, silty clay loam, gravelly clay loam, clay loam.	SC, CL	A-6, A-7-6	0-1	0-3	80-100	50-98	50-90	40-70	40-50	20-25
	31-36	Very channery clay loam, channery clay loam, very channery silty clay loam, channery silty clay loam.	GC, SC, CL, CH	A-6, A-7-6	0-2	0-5	40-80	35-70	30-60	25-60	40-60	20-40
	36-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
LugC2:												
Loudonville-----	0-7	Silt loam--------	CL-ML, CL	A-4, A-6	0	0	85-100	75-98	60-90	40-60	20-40	5-20
	7-24	Clay loam, silty clay loam.	CL-ML, CL	A-6, A-7	0	0	80-100	75-98	70-95	50-85	20-50	5-30
	24-31	Gravelly silty clay loam, silty clay loam, gravelly clay loam, clay loam.	CL, SC	A-6, A-7-6	0-1	0-3	80-100	50-98	50-90	40-70	40-50	20-25
	31-36	Very channery clay loam, channery clay loam, very channery silty clay loam, channery silty clay loam.	CH, CL, GC, SC	A-6, A-7-6	0-2	0-5	40-80	35-70	30-60	25-60	40-60	20-40
	36-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
LuhC:												
Loudonville-----	0-3	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	85-100	75-98	60-90	40-60	20-40	5-20
	3-6	Silt loam, loam--	CL, CL-ML	A-6, A-7	0	0	80-100	75-98	70-95	50-85	20-50	5-30
	6-20	Clay loam, channery clay loam, channery silty clay loam, silty clay loam.	SC, CL	A-6, A-7-6	0-1	0-3	80-100	75-98	55-90	40-70	40-50	20-25
	20-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
MamA:												
Mahalasville----	0-15	Silty clay loam--	CL	A-6, A-7, A-7-6	0	0	100	100	95-100	85-90	35-50	10-30
	15-33	Silty clay loam--	CL	A-6, A-7	0	0	100	100	95-100	85-90	35-45	15-25
	33-52	Loam, silt loam--	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	50-85	22-40	5-20
	52-60	Stratified sand to sandy loam to loam to silt loam.	CL-ML, CL	A-4	0	0	100	100	85-100	55-80	0-40	NP-20
MaoA:												
Mahalaland------	0-13	Silty clay loam--	CH, CL, ML	A-6, A-7-6	0	0	100	100	95-100	75-100	35-55	10-30
	13-33	Silty clay loam--	CH, CL	A-7-6	0	0	100	100	95-100	75-100	40-55	20-40
	33-46	Loam, silt loam, clay loam, sandy clay loam.	SC, SC-SM, CL	A-4, A-6	0	0-1	85-100	85-100	45-85	20-65	20-60	5-30
	46-80	Stratified gravelly coarse sand to gravelly sand to gravelly loamy sand to sandy loam.	SW-SM, SW	A-1-b	0-1	0-5	60-85	50-75	15-70	0-10	0-0	NP
MapA:												
Mahalasville, bedrock substratum----	0-13	Silty clay loam--	ML, CL, CH	A-6, A-7-6	0	0	100	100	95-100	85-100	35-55	10-30
	13-40	Silty clay loam--	CL, CH	A-7-6	0	0	100	100	95-100	90-100	40-55	20-40
	40-50	Clay loam, loam--	SC-SM, CL, SC, CL-ML	A-6, A-7	0-1	0	85-100	75-98	55-90	40-65	20-60	5-30
	50-59	Stratified loamy coarse sand.	SP-SM, SM	A-2-4	0-1	0	85-100	75-100	40-60	10-60	0-0	NP
	59-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
MecB2:												
Martinsville----	0-8	Loam-------------	CL	A-6, A-4	0	0	95-100	90-100	85-100	60-85	20-40	NP-20
	8-43	Clay loam, loam, sandy clay loam, silt loam.	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	90-100	90-100	80-95	40-80	25-45	5-30
	43-53	Sandy clay loam, fine sandy loam, loam, silt loam.	CL-ML, CL, SC-SM, SC, SM	A-2-4, A-2-6, A-4, A-6	0	0	80-100	75-100	60-95	25-65	15-40	3-30
	53-60	Stratified sandy loam to fine sandy loam to loam to silt loam.	SC-SM, SC, ML, CL-ML	A-4	0-1	0-3	90-100	85-98	65-90	40-70	15-30	NP-10

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
MjuA:												
Mellott---------	0-9	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	75-94	20-40	3-15
	9-28	Silty clay loam, silt loam.	CL, ML	A-6, A-7-6	0	0	100	100	90-100	75-94	25-50	3-35
	28-42	Loam, sandy clay loam.	SC-SM, SC, CL	A-2, A-4, A-6	0	0	90-100	85-95	45-85	20-65	20-60	5-20
	42-50	Loam, fine sandy loam.	SC, SM, CL-ML, CL	A-4, A-6	0	0-1	90-100	85-95	65-90	40-70	20-40	3-25
	50-60	Loam-------------	CL, CL-ML, ML	A-4, A-6	0-1	0-3	90-100	85-95	75-90	45-70	15-30	3-15
MqlG:												
Minnehaha-------	0-3	Silt loam, silty clay loam.	CL, CL-ML, SC-SM	A-6, A-7	0-1	0-10	85-100	85-100	80-100	70-95	24-50	5-27
	3-60	Extremely parachannery silty clay loam, clay loam, channery loam.	CL	A-4, A-6, A-7	0-5	0-15	85-100	75-95	65-95	50-90	24-50	8-27
MrcA:												
Mitiwanga-------	0-6	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0-5	98-100	90-98	85-95	75-90	20-30	3-15
	6-11	Channery loam, loam, silt loam.	CL, CL-ML, ML	A-4, A-6	0	0-5	98-100	90-98	85-95	75-90	20-30	3-15
	11-28	Clay loam, channery loam, silty clay loam, silt loam.	CL	A-6, A-7	0	0-5	98-100	90-98	75-95	75-90	25-45	10-25
	28-33	Channery clay loam, channery sandy clay loam, channery sandy loam, very channery clay loam, very channery sandy loam.	GC, SC-SM, GC-GM, SC	A-2-4	0-2	0-10	60-90	25-75	25-65	25-45	10-30	3-10
	33-80	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
ObmB2:												
Octagon---------	0-8	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0	100	95-100	90-100	75-90	20-40	3-15
	8-37	Clay loam, loam, sandy clay loam, silty clay loam.	CL-ML, CL	A-4, A-6, A-7-6	0	0-1	95-100	95-100	75-95	45-80	20-50	5-30
	37-60	Fine sandy loam, loam.	ML, SC, CL-ML, CL	A-4, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15
ObmC2:												
Octagon---------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-90	20-40	3-15
	7-37	Clay loam, loam, sandy clay loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0-1	95-100	95-100	75-95	45-80	20-50	5-30
	37-60	Fine sandy loam, loam.	CL, CL-ML, SC, ML	A-4, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
ObxA:												
Ockley----------	0-10	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	10-15	Silt loam--------	CL-ML, CL, ML	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	15-18	Silt loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	50-95	20-50	5-35
	18-37	Clay loam, sandy clay loam, loam.	CL, SC, CL-ML, SC-SM	A-2, A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	37-49	Gravelly sandy clay loam, gravelly sandy loam, clay loam.	CL, ML, SC, SM	A-2, A-4, A-6, A-7-6	0	0-2	70-85	40-85	25-75	15-60	10-50	NP-35
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand.	GP, GW-GM, SW-SM, SW	A-1-a	0-2	0-10	35-85	20-55	10-30	2-10	0-0	NP
ObxB2:												
Ockley----------	0-8	Silt loam--------	CL-ML, ML, CL	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	8-15	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	15-18	Silt loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-2, A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	18-37	Clay loam, sandy clay loam, loam.	CL-ML, SC-SM, SC, CL	A-2, A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	37-49	Gravelly sandy clay loam, gravelly sandy loam, clay loam.	ML, SC, CL, SM	A-2, A-4, A-6, A-7-6	0	0-2	70-85	40-85	25-75	15-60	10-50	NP-35
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand.	SW, GW-GM, GP, SW-SM	A-1-a, A-1	0-2	0-10	35-85	20-55	10-30	2-10	0-0	NP
ObxC2:												
Ockley----------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	7-15	Silt loam--------	CL-ML, ML, CL	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	15-18	Silt loam, silty clay loam.	SC, SC-SM, CL-ML, CL	A-2, A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	18-37	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	37-49	Gravelly sandy clay loam, gravelly sandy loam, clay loam.	ML, SC, SM, CL	A-2, A-4, A-6, A-7-6	0	0-2	70-85	40-85	25-75	15-60	10-50	NP-35
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand.	GP, GW-GM, SW, SW-SM	A-1-a, A-1	0-2	0-10	35-85	20-55	10-30	2-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
ObxD2:												
Ockley----------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	7-15	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	95-100	85-100	70-100	50-90	23-40	3-15
	15-18	Silt loam, silty clay loam.	CL-ML, CL, SC-SM, SC	A-2, A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	18-37	Clay loam, sandy clay loam, loam.	SC-SM, SC, CL, CL-ML	A-2, A-4, A-6, A-7-6	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	37-49	Gravelly sandy clay loam, gravelly sandy loam, clay loam.	SM, SC, CL, ML	A-2, A-4, A-6, A-7-6	0	0-2	70-85	40-85	25-75	15-60	10-50	NP-35
	49-80	Stratified very gravelly coarse sand to gravelly loamy coarse sand.	SW-SM, SW, GW-GM, GP	A-1-a, A-1	0-2	0-10	35-85	20-55	10-30	2-10	0-0	NP
Pg:												
Pits, gravel.												
PgaA:												
Pella-----------	0-15	Silty clay loam--	CH, CL, ML	A-7-6	0	0	100	100	95-100	85-100	35-55	10-30
	15-23	Silty clay loam, silty clay, clay loam.	CH, CL, ML	A-4, A-6, A-7-6	0	0	100	100	85-100	70-100	30-65	7-35
	23-31	Clay loam, loam, silty clay loam, silt loam.	CL, ML	A-4, A-6	0	0	100	100	95-100	70-100	25-40	3-15
	31-60	Stratified sandy loam to silty clay loam.	SM, CL-ML, SC-SM, CL, SC	A-2-4, A-4, A-6, A-7-6	0	0-1	90-100	75-100	55-100	25-100	10-50	3-25
PnwBQ:												
Pinevillage-----	0-8	Gravelly sandy loam.	SC, SC-SM, SM	A-2-4, A-1-b	0-2	0-15	55-80	50-75	30-65	10-30	10-25	NP-10
	8-45	Gravelly sandy loam, very gravelly sandy loam, extremely gravelly sandy loam.	SC, SC-SM, SM, GC	A-1, A-2, A-2-4	0-5	5-40	40-90	25-75	20-55	5-25	10-25	NP-10
	45-60	Stratified extremely gravelly loamy coarse sand to gravelly loam.	GC, GC-GM, GM, GP-GM, SC-SM	A-1, A-2, A-3, A-1-b	1-5	5-30	30-85	20-75	10-70	0-20	0-25	NP-10
PvsA:												
Princeton-------	0-10	Fine sandy loam--	SM, SC-SM, SC	A-2-4, A-4	0	0	100	100	80-100	25-50	15-25	NP-10
	10-41	Sandy clay loam, fine sandy loam, sandy loam, loam.	CL, SC	A-2-4, A-2-6, A-6	0	0	100	100	70-90	15-70	5-40	3-25
	41-60	Stratified loamy fine sand to fine sandy loam.	SC-SM, SC	A-2-4	0	0	100	100	70-95	10-35	0-25	NP-10
	60-80	Stratified fine sand to loamy fine sand.	SC-SM, SM	A-2-4	0	0	100	100	70-95	0-30	0-20	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
PvsB2:												
Princeton-------	0-8	Fine sandy loam--	SC-SM, SM, SC	A-2-4, A-4	0	0	100	100	80-100	25-50	15-25	NP-10
	8-41	Sandy clay loam, fine sandy loam, sandy loam, loam.	CL, SC	A-2-4, A-2-6, A-6	0	0	100	100	70-90	15-70	5-40	3-25
	41-60	Stratified loamy fine sand to fine sandy loam.	SC, SC-SM	A-2-4	0	0	100	100	70-95	10-35	0-25	NP-10
	60-80	Stratified fine sand to loamy fine sand.	SC-SM, SM	A-2-4	0	0	100	100	70-95	0-30	0-20	NP
PvsC2:												
Princeton-------	0-8	Fine sandy loam--	SC, SM, SC-SM	A-2-4, A-4	0	0	100	100	80-100	25-50	15-25	NP-10
	8-41	Sandy clay loam, fine sandy loam, sandy loam, loam.	SC, CL	A-2-4, A-2-6, A-6	0	0	100	100	70-90	15-70	5-40	3-25
	41-60	Stratified loamy fine sand to fine sandy loam.	SC, SC-SM	A-2-4	0	0	100	100	70-95	10-35	0-25	NP-10
	60-80	Stratified fine sand to loamy fine sand.	SM, SC-SM	A-2-4	0	0	100	100	70-95	0-30	0-20	NP
RbfA:												
Ragsdale--------	0-13	Silty clay loam--	CL	A-4, A-6	0	0	100	100	97-100	90-100	25-40	7-15
	13-50	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-100	30-50	10-30
	50-60	Silt loam--------	CL, CL-ML, ML	A-4	0	0	100	100	95-100	75-100	20-35	5-10
RbuB2:												
Rainsville------	0-6	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	20-40	3-15
	6-13	Silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	25-55	5-35
	13-30	Clay loam, loam, sandy clay loam.	CL-ML, CL, SC, SC-SM	A-4, A-6	0	0-1	85-100	75-98	55-90	40-65	20-60	5-30
	30-42	Clay loam, loam, sandy clay loam.	SC-SM, CL, SC, CL-ML	A-6, A-2-6	0	0-1	85-100	75-98	45-90	20-60	20-60	5-20
	42-48	Loam-------------	CL-ML, CL	A-4, A-6	0	0-1	95-100	90-100	85-95	55-70	20-40	5-25
	48-60	Loam-------------	CL-ML, CL, SM, SC	A-4, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15
RbuC2:												
Rainsville------	0-6	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	20-40	3-15
	6-13	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-90	25-55	5-35
	13-30	Clay loam, loam, sandy clay loam.	SC, SC-SM, CL-ML, CL	A-4, A-6	0	0-1	85-100	75-98	55-90	40-65	20-60	5-30
	30-42	Clay loam, loam, sandy clay loam.	SC, SC-SM, CL-ML, CL	A-6, A-2-6	0	0-1	85-100	75-98	45-90	20-60	20-60	5-20
	42-48	Loam-------------	CL-ML, CL	A-4, A-6	0	0-1	95-100	90-100	85-95	55-70	20-40	5-25
	48-60	Loam-------------	SM, SC, CL-ML, CL	A-4, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
RdvA:												
Raub	0-13	Silt loam	CL, CL-ML	A-4	0	0	100	100	95-100	75-95	20-30	4-10
	13-37	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	75-95	35-45	15-25
	37-60	Clay loam, loam, silty clay loam.	CL, ML	A-4, A-6	0	0-1	90-100	85-98	75-90	45-70	20-50	3-30
	60-70	Loam	CL, CL-ML	A-4, A-6	0-1	0-3	95-100	85-98	85-95	55-80	10-30	3-15
RetA:												
Rensselaer	0-8	Silty clay loam	CL	A-6	0	0	100	95-100	90-100	80-100	20-35	10-15
	8-14	Clay loam, silty clay loam.	CL	A-6	0	0	100	95-100	90-100	80-100	20-35	10-15
	14-42	Clay loam, loam, silty clay loam.	CL, CL-ML	A-4, A-6, A-7	0	0	100	95-100	80-100	50-95	20-50	5-20
	42-60	Stratified fine sand to sandy loam.	ML, CL, SC, SM, SC-SM	A-2, A-4	0	0	95-100	85-100	60-90	0-85	0-20	NP-8
RosAK:												
Rockmill	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	95-100	85-100	25-30	3-15
	8-20	Silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	85-100	25-50	5-25
	20-60	Muck	PT	A-8	0	0	---	---	---	---	---	---
RqaE:												
Rodman	0-10	Sandy loam	SM, SC-SM, ML, SC, CL	A-4	0	0-2	85-100	80-98	60-80	25-65	15-30	3-10
	10-18	Loam, gravelly sandy loam, coarse sandy loam, very gravelly coarse sandy loam.	SC-SM, SC, SM	A-2-4, A-4	0	0-2	70-100	45-85	45-85	25-40	15-30	NP-10
	18-80	Stratified extremely gravelly loamy coarse sand to sand.	GW-GM, GP-GM, SW-SM, SP-SM	A-1, A-1-a	0	1-5	30-70	10-50	10-40	0-10	0-0	NP
RqaG:												
Rodman	0-10	Sandy loam	CL, ML, SC, SC-SM, SM	A-4	0	0-2	85-100	80-98	60-80	25-65	15-30	3-10
	10-18	Loam, gravelly sandy loam, coarse sandy loam, very gravelly coarse sandy loam.	SM, SC, SC-SM	A-2-4, A-4	0	0-2	70-100	45-85	45-85	25-40	15-30	NP-10
	18-80	Stratified extremely gravelly loamy coarse sand to sand.	SW-SM, GP-GM, GW-GM, SP-SM	A-1, A-1-a	0	1-5	30-70	10-50	10-40	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
RtxAK:												
Rossburg--------	0-9	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0	0	95-100	92-100	80-100	60-90	20-35	3-15
	9-21	Loam, silt loam--	CL, ML, CL-ML	A-4, A-6	0	0	95-100	92-100	80-100	60-90	20-35	3-15
	21-49	Fine sandy loam, loam, silt loam, sandy loam.	CL, CL-ML, ML	A-4, A-6	0	0	90-100	85-100	70-95	50-80	20-35	3-15
	49-60	Stratified very gravelly fine sandy loam to silt loam.	CL, ML, SC, SM, SC-SM	A-2-4, A-4	0	0	80-100	50-100	45-90	25-70	15-25	NP-10
RuxA:												
Raub------------	0-13	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	95-100	75-95	20-30	4-10
	13-37	Silty clay loam--	CL	A-6, A-7	0	0	100	100	95-100	75-95	35-45	15-25
	37-60	Clay loam, loam, silty clay loam.	CL, ML	A-4, A-6	0	0-1	90-100	85-98	75-90	45-70	20-50	3-30
	60-70	Loam-------------	CL, CL-ML	A-4, A-6	0-1	0-3	95-100	90-100	85-95	55-80	10-30	3-15
Brenton---------	0-12	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	100	75-90	20-30	4-10
	12-34	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	100	75-90	35-45	5-25
	34-58	Clay loam, loam, silt loam, sandy loam.	CL	A-6, A-7	0	0	100	90-100	90-100	55-95	10-50	3-30
	58-65	Stratified sand to sandy loam to silt loam.	SC-SM, SC, CL-ML, CL	A-2, A-4, A-6	0	0	100	100	80-100	30-85	0-40	NP-20
RyfA:												
Rush------------	0-10	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	95-100	75-95	20-30	4-10
	10-34	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	75-95	25-45	5-25
	34-46	Clay loam, gravelly loam, loam, sandy clay loam.	CL, SC	A-6	0	0-1	95-100	90-100	80-95	45-75	20-50	5-20
	46-53	Gravelly loam, gravelly sandy clay loam, very gravelly sandy loam.	CL, CL-ML, SC, SC-SM	A-2-4, A-2-6, A-4, A-6	0	1-3	65-80	40-75	30-60	15-55	0-50	3-20
	53-62	Gravelly sandy loam, very gravelly coarse sandy loam, extremely gravelly loamy coarse sand.	GC, SC, SC-SM, SP-SC	A-2-4, A-4	0	1-3	65-85	50-75	35-65	10-55	0-30	NP-10
	62-70	Stratified extremely gravelly coarse sand to gravelly loamy sand.	GP, GP-GM, SP, SP-SM, SW, GW-GM, SW-SM	A-1, A-1-b	0-1	1-3	40-85	15-75	15-40	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
RyfB2:												
Rush------------	0-8	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	95-100	75-95	20-30	4-10
	8-34	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	75-95	25-45	5-25
	34-46	Clay loam, loam, sandy clay loam.	SC, CL	A-6	0	0-1	95-100	90-100	80-95	45-75	20-50	5-20
	46-53	Gravelly loam, gravelly sandy clay loam, very gravelly sandy loam.	CL, CL-ML, SC, SC-SM	A-2-4, A-2-6, A-4, A-6	0	1-3	65-80	40-75	30-60	15-55	0-50	3-20
	53-62	Gravelly sandy loam, very gravelly coarse sandy loam, extremely gravelly loamy coarse sand.	SC-SM, SP-SC, GC, SC	A-2-4, A-4	0	1-3	65-85	50-75	35-65	10-55	0-30	NP-10
	62-70	Stratified extremely gravelly coarse sand to gravelly loamy sand.	SP-SM, SP, SW, GW-GM, SW-SM, GP, GP-GM	A-1, A-1-b	0-1	1-3	40-85	15-75	15-40	0-10	0-0	NP
RywB2:												
Russell---------	0-8	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	100	75-95	20-30	4-10
	8-13	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	13-28	Silty clay loam--	CL	A-6, A-7	0	0-1	95-100	90-100	85-100	55-95	30-50	10-30
	28-53	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	85-100	85-95	55-80	30-50	10-30
	53-58	Clay loam, loam--	CL, CL-ML	A-4, A-6	0	0-1	90-100	85-100	75-95	55-80	20-50	NP-30
	58-80	Fine sandy loam, loam.	CL, CL-ML	A-4, A-6	0	0-1	90-100	80-95	75-90	45-70	15-30	3-15
RywC2:												
Russell---------	0-4	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	100	75-95	20-30	4-10
	4-13	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	13-28	Silty clay loam--	CL	A-6, A-7	0	0-1	95-100	90-100	85-100	75-95	30-50	10-30
	28-53	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	85-100	85-95	55-80	30-50	10-30
	53-58	Clay loam, loam--	CL, CL-ML	A-4, A-6	0	0-1	90-100	85-100	75-95	55-80	20-50	3-30
	58-80	Loam, fine sandy loam.	CL-ML, CL	A-4, A-6	0	0-1	90-100	80-95	75-90	45-70	15-30	3-15
RywD2:												
Russell---------	0-6	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	100	75-95	20-30	4-10
	6-13	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	13-28	Silty clay loam--	CL	A-6, A-7	0	0-1	95-100	90-100	85-100	75-95	30-50	10-30
	28-53	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	85-100	85-95	55-80	30-50	10-30
	53-58	Clay loam, loam--	CL-ML, CL	A-4, A-6	0	0-1	90-100	85-100	75-95	55-80	20-50	3-30
	58-80	Loam, fine sandy loam.	CL, CL-ML	A-4, A-6	0	0-1	90-100	80-95	75-90	45-70	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
RzcE:												
Russell---------	0-3	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	100	75-95	20-30	4-10
	3-13	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	13-28	Silty clay loam--	CL	A-6, A-7	0	0-1	95-100	90-100	85-100	55-95	30-50	10-30
	28-53	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	85-100	85-95	55-80	30-50	10-30
	53-58	Clay loam, loam--	CL-ML, CL	A-4, A-6	0	0-1	90-100	85-100	75-95	55-80	20-50	3-30
	58-80	Fine sandy loam, loam.	CL, CL-ML	A-4, A-6	0	0-1	90-100	80-95	75-90	45-70	15-30	3-15
Strawn----------	0-3	Loam-------------	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	3-9	Loam, silt loam--	CL, ML, CL-ML	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	9-16	Clay loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0-1	0-5	95-100	80-95	80-95	55-80	20-40	5-25
	16-60	Fine sandy loam, loam.	ML, CL, CL-ML	A-4, A-6	0-1	0-5	90-100	85-95	65-90	45-70	15-30	3-15
SldAK:												
Shoals----------	0-8	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	98-100	97-100	90-100	55-90	20-40	5-25
	8-33	Clay loam, loam, sandy clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	98-100	97-100	90-100	55-85	10-40	5-25
	33-60	Fine sandy loam, loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	98-100	95-100	90-100	55-85	10-40	5-25
SlyA:												
Silverwood------	0-8	Silt loam--------	CL, CL-ML	A-4	0	0	90-100	85-100	75-95	65-90	20-30	4-15
	8-14	Loam, silt loam--	CL	A-4, A-6	0	0	80-100	80-100	70-95	60-90	20-30	5-20
	14-25	Clay, gravelly clay loam, very gravelly sandy clay loam, loam.	CL, GC, SC	A-2-6, A-2-7, A-6, A-7	0	0-5	60-95	50-90	35-85	25-65	20-50	5-30
	25-49	Gravelly clay loam, gravelly loam, very gravelly clay, very gravelly sandy clay loam.	GC, SC	A-2-6, A-2-7	0	0-5	50-90	30-75	30-60	15-35	20-45	5-25
	49-80	Stratified gravelly coarse sand to extremely gravelly sand.	GP, GW-GM, SW-SM, SW, SP-SM, SP	A-1, A-1-a	0-3	0-5	45-75	0-75	0-20	0-15	0-0	NP
SlyB2:												
Silverwood------	0-7	Silt loam--------	CL-ML, CL	A-4	0	0	90-100	85-100	75-95	65-90	20-30	4-15
	7-14	Loam, silt loam--	CL	A-4, A-6	0	0	80-100	80-100	70-95	60-90	20-30	5-20
	14-25	Clay, gravelly clay loam, very gravelly sandy clay loam, loam.	CL, GC, SC	A-2-6, A-2-7, A-6, A-7	0	0-5	60-95	50-90	35-85	25-65	20-50	5-30
	25-49	Gravelly clay loam, gravelly loam, very gravelly clay, very gravelly sandy clay loam.	GC, SC	A-2-6, A-2-7	0	0-5	50-90	30-75	30-60	15-35	20-45	5-25
	49-80	Stratified gravelly coarse sand to extremely gravelly sand.	SW, SW-SM, GW-GM, GP, SP, SP-SM	A-1, A-1-a	0-3	0-5	45-75	0-75	0-20	0-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
SlzA:												
Silverwood------	0-8	Loam------------	CL, CL-ML	A-4	0	0	90-100	85-100	75-95	45-80	20-30	4-15
	8-14	Loam, silt loam--	CL	A-4, A-6	0	0	80-100	80-100	70-95	45-80	20-30	5-20
	14-25	Clay, gravelly clay loam, very gravelly sandy clay loam, loam.	SC, GC, CL	A-2-6, A-2-7, A-6, A-7	0	0-5	60-95	50-90	35-85	25-80	20-50	5-30
	25-49	Gravelly clay loam, gravelly loam, very gravelly clay, very gravelly sandy clay loam.	GC, SC	A-2-6, A-2-7	0	0-5	50-90	30-75	30-60	15-35	20-45	5-25
	49-80	Stratified gravelly coarse sand to extremely gravelly sand.	SP-SM, SP, GP, GW-GM, SW-SM, SW	A-1, A-1-a	0-3	0-5	45-75	0-75	0-20	0-15	0-0	NP
SlzB2:												
Silverwood------	0-7	Loam------------	CL, CL-ML	A-4	0	0	90-100	85-100	75-95	50-90	20-30	4-15
	7-14	Loam, silt loam--	CL	A-4, A-6	0	0	80-100	80-100	70-95	60-90	20-30	5-20
	14-25	Clay, gravelly clay loam, very gravelly sandy clay loam, loam.	GC, CL, SC	A-2-6, A-2-7, A-6, A-7	0	0-5	60-95	50-90	35-85	25-65	20-50	5-30
	25-49	Gravelly clay loam, gravelly loam, very gravelly clay, very gravelly sandy clay loam.	SC, GC	A-2-6, A-2-7	0	0-5	50-90	30-75	30-60	15-35	20-45	5-25
	49-80	Stratified gravelly coarse sand to extremely gravelly sand.	GW-GM, GP, SP, SP-SM, SW-SM, SW	A-1, A-1-a	0-3	0-5	45-75	0-75	0-20	0-15	0-0	NP
SlzC2:												
Silverwood------	0-6	Loam------------	CL-ML, CL	A-4	0	0	90-100	85-100	75-95	50-90	20-30	4-15
	6-14	Loam, silt loam--	CL	A-4, A-6	0	0	80-100	80-100	70-95	60-90	20-30	5-20
	14-25	Clay, gravelly clay loam, very gravelly sandy clay loam, loam.	SC, GC, CL	A-2-6, A-2-7, A-6, A-7	0	0-5	60-95	50-90	35-85	25-65	20-50	5-30
	25-49	Gravelly clay loam, gravelly loam, very gravelly clay, very gravelly sandy clay loam.	SC, GC	A-2-6, A-2-7	0	0-5	50-90	30-75	30-60	15-35	20-45	5-25
	49-80	Stratified gravelly coarse sand to extremely gravelly sand.	GW-GM, GP, SP, SW, SP-SM, SW-SM	A-1, A-1-a	0-3	0-5	45-75	0-75	0-20	0-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
SlzD2:												
Silverwood------	0-5	Loam-------------	CL, CL-ML	A-4	0	0	90-100	85-100	75-95	50-90	20-30	4-15
	5-14	Loam, silt loam--	CL	A-4, A-6	0	0	80-100	80-100	70-95	60-90	20-30	5-20
	14-25	Clay, gravelly sandy clay loam, very gravelly clay loam, loam.	CL, GC, SC	A-2-6, A-2-7, A-6, A-7	0	0-5	60-95	50-90	35-85	25-65	20-50	5-30
	25-49	Gravelly clay loam, gravelly loam, very gravelly clay, very gravelly sandy clay loam.	GC, SC	A-2-6, A-2-7	0	0-5	50-90	30-75	30-60	15-35	20-45	5-25
	49-80	Stratified gravelly coarse sand to extremely gravelly sand.	GW-GM, GP, SP, SP-SM, SW-SM, SW	A-1, A-1-a	0-3	0-5	45-75	0-75	0-20	0-15	0-0	NP
SngA:												
Sleeth----------	0-9	Silt loam, loam--	CL-ML, CL, ML	A-4, A-6	0	0	95-100	85-100	75-100	50-90	20-40	3-15
	9-14	Loam, silt loam--	ML, CL-ML, CL	A-4, A-6	0	0	95-100	85-100	75-100	50-90	20-40	3-15
	14-38	Clay loam, loam, sandy clay loam.	CL	A-6, A-7	0	0	90-98	85-98	55-95	50-75	35-43	15-21
	38-50	Gravelly clay loam, gravelly sandy clay loam, gravelly sandy loam.	CL, SC	A-6, A-7, A-2-6	0	0-3	55-90	55-75	30-70	15-55	30-43	11-21
	50-60	Stratified very gravelly coarse sand to gravelly sand to sand to gravelly loamy coarse sand.	SP-SM, SP, SW-SM, SW	A-1, A-1-b	0-1	0-10	60-75	30-75	18-35	0-10	0-0	NP
SnlAP:												
Southwest-------	0-10	Silt loam--------	CL, ML	A-4, A-6	0	0	100	100	95-100	75-100	27-39	3-15
	10-23	Silty clay loam, silt loam.	ML, CL	A-4, A-6	0	0	100	100	95-100	75-100	27-39	3-15
	23-34	Silt loam, silty clay loam, loam.	CL-ML, CL, ML	A-4, A-6	0	0	95-100	92-100	85-100	50-100	20-45	3-33
	34-45	Silt loam, silty clay loam, loam.	ML, CL-ML, CL	A-4, A-6, A-7-6	0	0	95-100	92-100	85-100	50-100	20-45	3-33
	45-75	Silt loam, silty clay loam.	CL-ML, CL, ML	A-4, A-6, A-7-6	0	0	95-100	92-100	85-100	65-100	25-45	3-28
	75-80	Loam, silt loam, clay loam.	CL, CL-ML, ML	A-4, A-6, A-7-6	0	0-1	95-100	92-100	75-100	50-100	20-45	NP-24
SobAI:												
Sloan-----------	0-15	Silty clay loam--	CL	A-6, A-7	0	0	100	95-100	85-100	70-95	35-45	12-20
	15-45	Clay loam, loam, silty clay loam, silt loam.	CL, ML	A-4, A-6, A-7	0	0	100	90-100	85-100	75-95	30-45	8-18
	45-60	Stratified sandy loam to silt loam to gravelly clay loam to silty clay loam.	CL, ML	A-4, A-6	0	0	95-100	50-100	50-95	50-90	25-40	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
SobAI:												
Beaucoup--------	0-10	Silty clay loam--	CL	A-6, A-7, A-7-6	0	0	100	100	95-100	80-100	35-50	10-25
	10-15	Silty clay loam, silt loam.	CL	A-6, A-7, A-7-6	0	0	100	100	95-100	80-100	35-50	10-25
	15-40	Silty clay loam, silt loam.	CL	A-6, A-7, A-7-6	0	0	100	100	95-100	80-100	35-50	10-25
	40-49	Stratified sandy loam to loam to silt loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6, A-7	0	0	100	100	95-100	75-100	20-50	3-25
	49-60	Stratified sandy loam to loam to silt loam to silty clay loam.	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	55-100	20-40	NP-25
SseB2:												
St. Charles-----	0-9	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	97-100	85-100	20-30	4-10
	9-49	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	97-100	85-100	25-45	5-25
	49-63	Stratified fine sandy loam to silt loam to sandy clay loam to clay loam.	CL-ML, SC-SM, SC, SM, CL	A-2-4, A-6, A-4	0	0	85-100	80-100	60-95	25-60	15-40	3-20
	63-70	Stratified sandy loam to fine sandy loam to silt loam.	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0	90-100	80-100	60-90	25-85	10-40	NP-20
SteA:												
Starks----------	0-11	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	97-100	85-100	20-30	4-10
	11-36	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	85-100	35-45	15-25
	36-49	Loam, silty clay loam, silt loam, sandy loam.	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	90-100	40-80	15-45	3-25
	49-60	Stratified loamy sand to loam to silt loam to sandy clay loam.	SC-SM, CL-ML, CL, SC	A-2, A-4, A-6	0	0	100	100	80-100	30-85	0-40	NP-20
SvqE:												
Strawn----------	0-3	Loam------------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	3-9	Loam, silt loam--	CL, CL-ML, ML	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	9-16	Clay loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0-1	0-5	95-100	80-95	80-95	55-80	20-40	5-25
	16-60	Fine sandy loam, loam.	ML, CL-ML, CL	A-4, A-6	0-1	0-5	90-100	85-95	65-90	45-70	15-30	3-15
SvqG:												
Strawn----------	0-6	Loam------------	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	6-18	Clay loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0-1	0-5	95-100	80-95	80-95	55-80	20-40	5-25
	18-60	Fine sandy loam, loam.	CL-ML, ML, CL	A-4, A-6	0-1	0-5	90-100	85-95	65-90	45-70	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification Unified	Classification AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
SwdE:												
Strawn----------	0-3	Loam------------	CL-ML, CL, ML	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	3-9	Loam, silt loam--	ML, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	9-16	Clay loam, loam, silty clay loam.	CL, CL-ML	A-4, A-6	0-1	0-5	95-100	80-95	80-95	55-80	20-40	5-25
	16-60	Fine sandy loam, loam.	CL-ML, CL, ML	A-4, A-6	0-1	0-5	90-100	85-95	65-90	45-70	15-30	3-15
Rodman----------	0-10	Sandy loam-------	SM, ML, CL, SC-SM, SC	A-4	0	0-2	85-100	80-98	60-80	25-65	15-30	3-10
	10-18	Coarse sandy loam, gravelly sandy loam, very gravelly coarse sandy loam, loam.	SM, SC-SM, SC	A-2-4, A-4	0	0-2	70-100	45-85	45-85	25-40	15-30	NP-10
	18-80	Stratified extremely gravelly loamy coarse sand to sand.	SP-SM, GW-GM, GP-GM, SW-SM	A-1, A-1-a	0	1-5	30-70	10-50	10-40	0-10	0-0	NP
SwdG:												
Strawn----------	0-6	Loam------------	CL-ML, ML, CL	A-4, A-6	0	0	95-100	90-100	85-95	75-90	15-40	3-15
	6-18	Clay loam, loam, silty clay loam.	CL-ML, CL	A-4, A-6	0-1	0-5	95-100	80-95	80-95	55-80	20-40	5-25
	18-60	Fine sandy loam, loam.	ML, CL-ML, CL	A-4, A-6	0-1	0-5	90-100	85-95	65-90	45-70	15-30	3-15
Rodman----------	0-10	Sandy loam-------	SC-SM, SC, ML, CL, SM	A-4	0	0-2	85-100	80-98	60-80	25-65	15-30	3-10
	10-18	Coarse sandy loam, gravelly sandy loam, very gravelly coarse sandy loam, loam.	SC, SC-SM, SM	A-2-4, A-4	0	0-2	70-100	45-85	45-85	25-40	15-30	NP-10
	18-80	Stratified extremely gravelly loamy coarse sand to sand.	SW-SM, SP-SM, GW-GM, GP-GM	A-1, A-1-a	0	1-5	30-70	10-50	10-40	0-10	0-0	NP
TfdA:												
Throckmorton----	0-9	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-90	20-40	4-15
	9-34	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	90-100	75-90	25-50	4-35
	34-45	Clay loam, sandy clay loam, sandy loam.	CL, SC, SC-SM	A-2, A-4, A-6, A-7-6	0	0	90-100	80-98	80-95	25-75	10-50	4-30
	45-58	Loam------------	CL-ML, CL	A-4, A-6	0	0-1	95-100	85-95	85-95	55-70	20-40	5-25
	58-65	Loam------------	CL, CL-ML, ML	A-6, A-4	0-1	0-3	90-100	85-95	75-90	45-70	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
TfdB:												
Throckmorton----	0-10	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-90	20-40	4-15
	10-32	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	0	100	100	90-100	75-90	25-50	4-35
	32-50	Clay loam, sandy clay loam, sandy loam.	SC-SM, SC, CL	A-2, A-4, A-6, A-7-6	0	0	90-100	80-98	80-95	25-75	10-50	4-30
	50-58	Loam-------------	CL, CL-ML	A-4, A-6	0	0-1	95-100	85-95	85-95	55-70	20-40	5-25
	58-80	Loam-------------	CL-ML, ML, CL	A-4, A-6	0-1	0-3	90-100	85-95	75-90	45-70	15-30	3-15
ThrA:												
Treaty----------	0-14	Silty clay loam--	CL	A-6, A-7-6	0	0	100	100	95-100	85-95	35-50	10-30
	14-36	Silty clay loam--	CL	A-6	0	0	100	100	95-100	85-95	35-45	15-25
	36-59	Clay loam, loam, silty clay loam.	CL, CL-ML	A-4, A-6	0	0-1	95-100	85-98	85-95	55-80	20-50	5-30
	59-70	Fine sandy loam, loam.	CL, CL-ML	A-4, A-6	0	0-1	90-100	85-98	75-90	45-70	15-30	3-15
TlxA:												
Toronto---------	0-9	Silt loam--------	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-95	20-40	4-15
	9-12	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-95	20-40	4-15
	12-32	Silty clay loam, silt loam.	CH, CL	A-6, A-7-6	0	0	100	98-100	90-100	75-95	35-55	10-35
	32-53	Clay loam, loam--	CL, CL-ML	A-4, A-6, A-7-6	0	0-1	95-100	85-98	85-98	55-85	20-50	5-30
	53-60	Loam, silt loam--	CL, CL-ML, ML	A-4, A-6	0-1	0-3	90-100	85-98	75-95	40-85	15-30	3-15
TmcA:												
Totanang--------	0-12	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-95	20-40	4-15
	12-34	Silty clay loam--	CL, CL-ML	A-6, A-7	0	0	100	98-100	90-100	75-95	25-55	5-35
	34-62	Clay loam, gravelly sandy loam, loam.	SC, SC-SM, ML, CL	A-2, A-4, A-6	0	0-3	65-100	65-95	30-90	15-60	10-40	NP-20
	62-80	Stratified very gravelly coarse sand to gravelly coarse sand to gravelly loamy coarse sand.	GP, GW-GM, SP-SM, SW, SW-SM, SP, GP-GM	A-1-a, A-1-b	0-1	10-20	45-75	35-75	10-20	0-10	0-0	NP
UbyE:												
Udorthents.												
Uea:												
Urban land.												
WkmA:												
Waupecan--------	0-11	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	97-100	75-95	20-30	4-15
	11-35	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	35-72	Gravelly sandy clay loam, loam, sandy loam.	CL, ML, SC, SM	A-2, A-4, A-6	0	0-3	70-85	40-85	25-75	20-70	10-50	3-35
	72-80	Stratified gravelly coarse sand to very gravelly loamy coarse sand.	SP, SP-SM, SW, SW-SM	A-1, A-1-b	0	0-5	65-95	30-75	15-40	0-15	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WkmB2:												
Waupecan--------	0-11	Silt loam--------	CL-ML, CL	A-4, A-6	0	0	100	100	97-100	75-95	20-30	4-15
	11-35	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	35-72	Gravelly sandy clay loam, loam, sandy loam.	SM, SC, ML, CL	A-2, A-4, A-6	0	0-3	70-85	40-85	25-75	20-70	10-50	3-35
	72-80	Stratified gravelly coarse sand to very gravelly loamy coarse sand.	SP-SM, SP, SW-SM, SW	A-1, A-1-b	0	0-5	65-95	30-75	15-40	0-15	0-0	NP
WmnA:												
Waynetown-------	0-14	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	97-100	75-95	20-30	4-15
	14-32	Silty clay loam--	CL	A-6	0	0	100	100	95-100	75-95	35-45	15-25
	32-45	Clay loam, loam--	CL	A-4, A-6	0	0	95-100	95-100	80-95	50-65	20-50	5-30
	45-70	Gravelly clay loam, gravelly loam, gravelly sandy clay loam.	SC, GC, CL	A-2-4, A-2-6, A-4, A-6	0	0-3	60-85	55-75	45-75	20-55	20-50	5-20
	70-75	Stratified gravelly coarse sand to gravelly loamy coarse sand.	SP-SM, SP, SW, SW-SM	A-1, A-1-b	0-1	1-5	65-80	55-75	15-40	0-10	0-0	NP
WmpA:												
Wea-------------	0-10	Loam-------------	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0	95-100	90-100	45-100	45-90	20-30	4-13
	10-20	Clay loam, loam--	SC, CL, SC-SM, CL-ML	A-6, A-7-6, A-2, A-4	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	20-44	Gravelly sandy clay loam, gravelly sandy loam.	ML, SM, CL, SC	A-2, A-6, A-4, A-7-6	0	0-5	70-85	40-85	25-75	15-60	10-50	3-35
	44-54	Gravelly sandy loam.	SC, GC, SC-SM, SP-SC	A-2-4, A-4	0	1-5	65-85	50-75	35-65	10-55	0-30	NP-10
	54-80	Stratified gravelly coarse sand to very gravelly loamy sand.	SP-SM, SW, SW-SM, SP	A-1, A-1-b	0-1	0-20	60-85	30-75	15-40	0-10	0-0	NP
WmpB2:												
Wea-------------	0-8	Loam-------------	CL-ML, SC, SC-SM, CL	A-4, A-6	0	0	95-100	90-100	45-100	45-90	20-30	4-13
	8-16	Clay loam, loam--	CL, CL-ML, SC-SM, SC	A-6, A-7-6, A-2, A-4	0	0-1	90-100	85-100	70-100	30-95	20-50	5-35
	16-44	Gravelly sandy clay loam, gravelly sandy loam.	ML, SC, CL, SM	A-2, A-6, A-4, A-7-6	0	0-5	70-85	40-85	25-75	15-60	10-50	3-35
	44-54	Gravelly sandy loam.	GC, SC, SC-SM, SP-SC	A-2-4, A-4	0	1-5	65-85	50-75	35-65	10-55	0-30	NP-10
	54-80	Stratified gravelly coarse sand to very gravelly loamy sand.	SW, SW-SM, SP-SM, SP	A-1, A-1-b	0-1	0-20	60-85	30-75	15-40	0-10	0-0	NP

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
WqvA:												
Westland--------	0-10	Silty clay loam--	CL	A-6, A-7, A-7-6	0	0	95-100	90-100	85-100	75-95	30-55	10-30
	10-21	Silty clay loam--	CL	A-6, A-7, A-7-6	0	0	85-100	80-95	70-95	55-90	35-55	15-35
	21-47	Clay loam, gravelly sandy clay loam, very gravelly clay loam, loam.	SM, SC, ML, CL	A-2-4, A-2-6, A-4, A-6	0	0-3	75-100	70-95	55-95	25-75	20-40	3-18
	47-60	Stratified gravelly coarse sand to very gravelly loamy coarse sand.	SW, SP-SM, SW-SM, GP	A-1, A-1-b	0-1	0-5	35-75	30-70	15-50	0-10	0-0	NP
WsuA:												
Whitaker--------	0-9	Loam-------------	CL, CL-ML, ML	A-4, A-6	0	0	90-100	90-98	75-85	55-65	15-25	3-20
	9-17	Loam-------------	ML, CL-ML, CL	A-4, A-6	0	0	90-100	90-98	75-85	55-65	15-40	3-20
	17-39	Clay loam, sandy clay loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-95	40-75	20-50	5-30
	39-48	Loam, sandy loam.	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	80-95	40-75	20-40	5-20
	48-60	Stratified sand to sandy loam to loam to silt loam.	CL-ML, ML, SM, SC-SM	A-2-4, A-4	0	0	85-100	75-98	55-95	10-85	0-40	NP-10
WtaA:												
Whitaker--------	0-12	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-90	15-25	3-20
	12-47	Clay loam, sandy clay loam, silty clay loam, sandy loam.	CL-ML, SC, SC-SM, CL	A-4, A-6	0	0	100	95-100	80-100	40-80	20-50	5-30
	47-80	Stratified sand to sandy loam to loam to silt loam.	CL-ML, ML, SC-SM, SM	A-4	0	0	98-100	98-100	60-85	40-60	0-40	NP-10
WufB2:												
Williamstown----	0-9	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0	98-100	95-100	90-98	75-90	22-35	3-12
	9-33	Silty clay loam, clay loam.	CL	A-6, A-7, A-7-6	0	0-2	98-100	85-98	80-90	55-75	35-48	15-30
	33-37	Fine sandy loam, loam.	CL, CL-ML	A-4, A-6	0	0-2	85-98	75-90	75-90	50-70	20-34	7-16
	37-80	Loam, fine sandy loam.	SC, ML, SC-SM, CL-ML, CL	A-4, A-6	0-1	0-2	85-98	75-90	65-80	40-60	15-30	3-15
WvaA:												
Wingate---------	0-9	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	75-95	20-35	4-15
	9-12	Silt loam--------	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	75-95	25-35	7-15
	12-27	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	34-43	14-21
	27-52	Clay loam, loam--	CL	A-6	0	0-3	90-100	90-98	70-95	45-80	30-39	11-18
	52-60	Loam-------------	CL, CL-ML	A-4, A-6	0	0-3	85-100	85-98	70-95	45-75	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				*Pct*	*Pct*					*Pct*	
WvaB2:												
Wingate---------	0-9	Silt loam--------	CL-ML, CL	A-4, A-6	0	0	100	100	95-100	75-95	20-35	4-15
	9-38	Silty clay loam, silt loam.	CL	A-6, A-7	0	0	100	100	95-100	75-95	34-43	14-21
	38-70	Clay loam, loam--	CL	A-6	0	0-3	90-100	90-98	70-95	45-80	30-39	11-18
	70-80	Loam-------------	CL, CL-ML	A-4, A-6	0	0-3	85-100	85-98	70-95	45-75	15-30	3-15
XabA:												
Xenia-----------	0-10	Silt loam--------	CL, CL-ML	A-4	0	0	100	100	100	75-95	20-30	4-10
	10-30	Silty clay loam--	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	30-50	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	90-95	85-95	55-80	30-50	10-30
	50-58	Clay loam, loam--	CL, CL-ML	A-4, A-6	0	0-1	90-100	90-95	75-95	55-80	20-50	3-30
	58-80	Fine sandy loam, loam.	CL-ML, CL	A-4, A-6	0	0-1	90-100	90-95	75-90	45-70	15-30	3-15
XabB2:												
Xenia-----------	0-8	Silt loam--------	CL-ML, CL	A-4	0	0	100	100	100	75-95	20-30	4-10
	8-30	Silty clay loam--	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	75-95	25-45	5-25
	30-50	Clay loam, loam--	CL	A-6, A-7	0	0-1	95-100	90-95	85-95	55-80	30-50	10-30
	50-58	Clay loam, loam--	CL-ML, CL	A-4, A-6	0	0-1	90-100	90-95	75-95	55-80	20-50	3-30
	58-80	Fine sandy loam, loam.	CL, CL-ML	A-4, A-6	0	0-1	90-100	90-95	75-90	45-70	15-30	3-15
XfuB2:												
Miami-----------	0-8	Silt loam--------	ML, CL, CL-ML	A-4, A-6	0	0-1	98-100	90-100	85-100	75-90	20-30	3-15
	8-13	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	100	85-98	85-98	75-90	25-55	5-35
	13-31	Clay loam, silty clay loam.	CL	A-6, A-7-6	0-1	0-3	90-98	85-98	85-95	55-85	30-50	11-31
	31-36	Fine sandy loam, loam.	CL, ML, SC, SM	A-4, A-6	0-1	0-3	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam, fine sandy loam.	SM, CL, ML, SC	A-6, A-4	0-1	0-3	90-98	85-98	65-90	40-70	15-30	3-15
Rainsville------	0-8	Silt loam--------	CL-ML, ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	20-40	3-15
	8-13	Silty clay loam, silt loam.	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	75-90	25-55	5-35
	13-30	Clay loam, loam, sandy clay loam.	SC, CL, CL-ML, SC-SM	A-4, A-6	0	0-1	85-100	75-98	55-90	40-65	20-60	5-30
	30-42	Clay loam, loam, sandy clay loam.	CL, SC-SM, CL-ML, SC	A-6, A-2-6	0	0-1	85-100	75-98	45-90	20-60	20-60	5-20
	42-48	Loam-------------	CL-ML, CL	A-4, A-6	0	0-1	95-100	90-100	85-95	55-70	20-40	5-25
	48-60	Loam-------------	SM, SC, CL-ML, CL	A-4, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15
XfuC2:												
Miami-----------	0-7	Silt loam--------	CL, CL-ML, ML	A-4, A-6	0	0-1	98-100	90-100	85-100	75-90	20-30	3-15
	7-13	Silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	100	85-98	85-98	75-90	25-55	5-35
	13-31	Clay loam, silty clay loam.	CL	A-6, A-7-6	0-1	0-3	90-98	85-98	85-95	55-85	30-50	11-31
	31-36	Loam, fine sandy loam.	ML, CL, SC, SM	A-4, A-6	0-1	0-3	90-98	85-98	65-95	40-70	15-37	3-22
	36-80	Loam, fine sandy loam.	CL, ML, SC, SM	A-6, A-4	0-1	0-3	90-98	85-98	65-90	40-70	15-30	3-15

Table 15.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
XfuC2:												
Rainsville------	0-6	Silt loam--------	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	20-40	3-15
	6-13	Silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	75-90	25-55	5-35
	13-30	Clay loam, loam, sandy clay loam.	SC-SM, SC, CL-ML, CL	A-4, A-6	0	0-1	85-100	75-98	55-90	40-65	20-60	5-30
	30-42	Clay loam, loam, sandy clay loam.	CL-ML, SC, CL, SC-SM	A-6, A-2-6	0	0-1	85-100	75-98	45-90	20-60	20-60	5-20
	42-48	Loam-------------	CL, CL-ML	A-4, A-6	0	0-1	95-100	90-100	85-95	55-70	20-40	5-25
	48-60	Loam-------------	SC, CL, CL-ML, SM	A-4, A-6	0-1	0-3	90-100	85-98	65-90	40-70	15-30	3-15
YedA:												
Yeddo-----------	0-8	Silt loam--------	CL, CL-ML, ML	A-4	0	0	100	100	97-100	90-100	20-30	3-10
	8-9	Silt loam--------	CL	A-4	0	0	100	100	97-100	90-100	20-35	5-10
	9-34	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	97-100	90-100	30-35	10-15
	34-45	Silty clay loam, silt loam.	CL-ML, CL	A-4	0	0	100	100	97-100	90-100	20-35	5-10
	45-76	Silt loam--------	ML, CL-ML, CL	A-4	0	0	100	100	97-100	90-100	15-35	NP-10
	76-80	Loam-------------	CL-ML, CL, ML	A-4	0	0	90-100	85-98	75-90	45-80	15-30	NP-15

Table 16.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" apply only to the surface layer. 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	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
AbfA:										
Adeland---------	0-10	18-25	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	3	6
	10-13	35-50	1.35-1.65	0.60-2.00	0.12-0.16	3.0-5.9	.37	.37		
	13-29	30-45	1.35-1.65	0.20-0.60	0.13-0.19	3.0-5.9	.32	.37		
	29-34	35-45	1.35-1.65	0.06-0.60	0.07-0.12	3.0-5.9	.24	.37		
	34-80	---	---	0.06-0.20	---	---	---	---		
AbhAI:										
Adrian----------	0-36	---	0.30-0.60	0.20-6.00	0.35-0.45	---	---	---	2	2
	36-60	1-4	1.60-1.80	6.00-20.00	0.05-0.07	0.0-2.9	.10	.10		
AjaAI:										
Allison---------	0-18	20-27	1.30-1.60	0.60-2.00	0.21-0.24	0.0-2.9	.28	.28	5	6
	18-51	25-35	1.40-1.60	0.60-2.00	0.18-0.21	3.0-5.9	.32	.32		
	51-80	25-40	1.40-1.60	0.60-2.00	0.15-0.21	3.0-5.9	.37	.37		
ApkA:										
Angatoka--------	0-9	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	5
	9-78	22-32	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.49	.49		
	78-80	0-2	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
AplA:										
Angatoka--------	0-8	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	5
	8-62	16-32	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.49	.49		
	62-70	20-28	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	70-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
AplB2:										
Angatoka--------	0-7	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	5
	7-62	16-32	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.49	.49		
	62-70	20-28	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	70-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
AplC2:										
Angatoka--------	0-4	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	5
	4-10	9-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43		
	10-62	16-32	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.49	.49		
	62-70	20-28	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	70-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
AzqA:										
Ayrshire--------	0-12	5-12	1.40-1.50	0.60-2.00	0.18-0.20	0.0-2.9	.37	.37	5	5
	12-44	22-32	1.40-1.60	0.60-2.00	0.16-0.18	0.0-2.9	.24	.24		
	44-80	8-20	1.60-1.70	2.00-6.00	0.12-0.14	0.0-2.9	.24	.24		
BcgAI:										
Battleground----	0-10	20-27	1.30-1.60	0.60-2.00	0.21-0.24	0.0-2.9	.28	.28	5	4L
	10-19	20-35	1.40-1.60	0.60-2.00	0.21-0.24	3.0-5.9	.32	.32		
	19-80	15-35	1.40-1.60	0.60-2.00	0.18-0.22	3.0-5.9	.49	.49		
BhyA:										
Birkbeck--------	0-10	12-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	6
	10-16	15-27	1.40-1.70	0.60-2.00	0.14-0.21	0.0-2.9	.43	.43		
	16-55	25-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	55-60	18-30	1.50-1.70	0.60-1.00	0.12-0.16	0.0-2.9	.28	.32		
	60-66	17-30	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
BhyB2:										
Birkbeck--------	0-10	12-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	6
	10-16	15-27	1.40-1.70	0.60-2.00	0.14-0.21	0.0-2.9	.43	.43		
	16-55	25-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	55-60	18-30	1.50-1.70	0.60-1.00	0.12-0.16	0.0-2.9	.28	.32		
	60-66	17-30	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
BvlAK:										
Brouillett------	0-11	18-27	1.20-1.45	0.60-2.00	0.19-0.24	0.0-2.9	.32	.32	5	5
	11-26	18-30	1.20-1.50	0.60-2.00	0.16-0.22	0.0-2.9	.32	.32		
	26-42	18-30	1.20-1.55	0.60-2.00	0.15-0.20	0.0-2.9	.32	.32		
	42-60	8-30	1.35-1.60	0.60-6.00	0.05-0.18	0.0-2.9	.32	.32		
CbaA:										
Camden----------	0-9	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	6
	9-29	25-35	1.40-1.70	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	29-64	10-27	1.40-1.70	0.60-2.00	0.11-0.22	0.0-2.9	.32	.32		
	64-70	5-20	1.45-1.70	0.60-2.00	0.11-0.22	0.0-2.9	.37	.37		
CbaB2:										
Camden----------	0-9	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	6
	9-29	25-35	1.40-1.70	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	29-64	10-27	1.40-1.70	0.60-2.00	0.11-0.22	0.0-2.9	.32	.32		
	64-70	5-20	1.45-1.70	0.60-2.00	0.11-0.22	0.0-2.9	.37	.37		
CfrG:										
Cates-----------	0-4	6-18	1.30-1.40	0.60-2.00	0.15-0.24	0.0-2.9	.32	.43	2	5
	4-26	8-18	1.30-1.50	2.00-6.00	0.05-0.19	0.0-2.9	.32	.64		
	26-36	10-32	1.30-1.50	2.00-6.00	0.03-0.10	0.0-2.9	.10	.64		
	36-80	---	---	0.06-0.20	---	---	---	---		
ChqA:										
Chalmers--------	0-9	20-35	1.20-1.65	0.60-2.00	0.20-0.26	3.0-5.9	.28	.28	5	7
	9-13	20-35	1.20-1.65	0.60-2.00	0.20-0.26	3.0-5.9	.28	.28		
	13-30	20-35	1.40-1.70	0.60-2.00	0.18-0.21	3.0-5.9	.37	.37		
	30-45	15-35	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.43	.43		
	45-60	12-18	1.60-1.80	0.20-0.60	0.02-0.12	0.0-2.9	.32	.37		
CnaB:										
Coloma----------	0-8	1-10	1.40-1.70	6.00-20.00	0.08-0.12	0.0-2.9	.05	.05	5	2
	8-28	1-10	1.50-1.70	6.00-20.00	0.05-0.12	0.0-2.9	.02	.02		
	28-60	1-12	1.60-1.80	6.00-20.00	0.03-0.08	0.0-2.9	.02	.02		
CnaC:										
Coloma----------	0-8	1-10	1.40-1.70	6.00-20.00	0.08-0.12	0.0-2.9	.05	.05	5	2
	8-28	1-10	1.50-1.70	6.00-20.00	0.05-0.12	0.0-2.9	.02	.02		
	28-60	1-12	1.60-1.80	6.00-20.00	0.03-0.08	0.0-2.9	.02	.02		
CsuA:										
Crane-----------	0-10	15-27	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.32	.32	4	5
	10-15	15-27	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.32	.32		
	15-36	20-35	1.40-1.60	0.60-2.00	0.15-0.19	3.0-5.9	.24	.24		
	36-53	18-35	1.60-1.80	0.60-2.00	0.08-0.16	3.0-5.9	.10	.17		
	53-60	1-10	1.70-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.05		
CudA:										
Crosby----------	0-8	10-24	1.30-1.60	0.60-2.00	0.17-0.26	0.0-2.9	.43	.43	4	5
	8-11	10-24	1.30-1.60	0.60-2.00	0.17-0.26	0.0-2.9	.43	.43		
	11-14	20-28	1.45-1.65	0.60-2.00	0.16-0.24	0.0-2.9	.43	.43		
	14-28	35-45	1.45-1.65	0.60-2.00	0.07-0.21	3.0-5.9	.28	.32		
	28-36	12-35	1.55-1.75	0.06-0.20	0.07-0.17	0.0-5.9	.28	.37		
	36-80	10-25	1.75-2.00	0.01-0.20	0.01-0.03	0.0-2.9	.32	.43		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
DpbA:										
Drummer---------	0-15	27-35	1.20-1.60	0.60-2.00	0.20-0.26	3.0-5.9	.28	.28	5	7
	15-49	20-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.37	.37		
	49-57	20-27	1.30-1.70	0.60-2.00	0.10-0.18	3.0-5.9	.32	.32		
	57-65	10-32	1.50-1.70	0.60-2.00	0.19-0.21	0.0-2.9	.24	.28		
EcoA:										
Edwardsville----	0-16	15-30	1.20-1.65	0.60-2.00	0.22-0.24	3.0-5.9	.28	.28	5	6
	16-41	20-38	1.40-1.70	0.60-2.00	0.18-0.22	3.0-5.9	.37	.37		
	41-80	8-25	1.40-1.55	0.60-2.00	0.20-0.22	0.0-2.9	.49	.49		
EdeAK:										
Eel-------------	0-10	15-27	1.35-1.45	0.60-2.00	0.18-0.24	0.0-2.9	.43	.43	5	6
	10-34	15-30	1.40-1.55	0.60-2.00	0.15-0.20	0.0-2.9	.32	.32		
	34-60	10-35	1.45-1.60	0.60-6.00	0.15-0.20	0.0-2.9	.43	.43		
Beckville-------	0-11	7-18	1.30-1.50	0.60-2.00	0.20-0.24	0.0-2.9	.32	.32	5	5
	11-28	7-18	1.30-1.50	2.00-6.00	0.13-0.19	0.0-2.9	.32	.32		
	28-60	7-18	1.30-1.60	2.00-6.00	0.11-0.18	0.0-2.9	.24	.28		
EmdA:										
Elston----------	0-10	8-15	1.40-1.60	2.00-6.00	0.12-0.18	0.0-2.9	.15	.15	5	3
	10-20	8-15	1.40-1.60	2.00-6.00	0.12-0.18	0.0-2.9	.15	.15		
	20-45	10-22	1.50-1.70	2.00-6.00	0.12-0.18	0.0-2.9	.15	.15		
	45-72	4-10	1.50-1.70	6.00-20.00	0.08-0.13	0.0-2.9	.10	.10		
	72-80	1-5	1.60-1.80	6.00-20.00	0.05-0.07	0.0-2.9	.10	.10		
EmdB:										
Elston----------	0-12	8-15	1.40-1.60	2.00-6.00	0.12-0.18	0.0-2.9	.15	.15	5	3
	12-30	10-22	1.50-1.70	2.00-6.00	0.12-0.18	0.0-2.9	.15	.15		
	30-48	4-10	1.50-1.70	6.00-20.00	0.08-0.13	0.0-2.9	.10	.10		
	48-60	1-5	1.60-1.80	6.00-20.00	0.05-0.07	0.0-2.9	.10	.10		
FamB:										
Fairpoint-------	0-5	25-35	1.45-1.65	0.20-0.60	0.06-0.15	3.0-5.9	.15	.28	5	8
	5-60	18-35	1.60-1.80	0.20-0.60	0.03-0.10	3.0-5.9	.15	.43		
FdbA:										
Fincastle-------	0-10	11-26	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	10-13	11-26	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49		
	13-27	23-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	27-50	25-32	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.32	.37		
	50-59	12-30	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
	59-80	12-26	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
FdbB:										
Fincastle-------	0-10	11-26	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	10-13	11-26	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49		
	13-27	23-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	27-50	25-32	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.32	.37		
	50-59	12-30	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
	59-80	12-26	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
FdnA:										
Fincastle-------	0-10	11-26	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	10-13	11-26	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49		
	13-27	23-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	27-50	25-32	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.32	.37		
	50-59	12-30	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
	59-80	12-26	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
FdnA:										
Starks----------	0-11	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	6
	11-36	22-35	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.37	.37		
	36-49	18-30	1.40-1.60	0.60-2.00	0.10-0.18	3.0-5.9	.32	.32		
	49-60	8-25	1.50-1.70	0.60-2.00	0.19-0.21	0.0-2.9	.32	.32		
GcaAK:										
Genesee---------	0-8	18-27	1.35-1.45	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	6
	8-32	18-27	1.40-1.55	0.60-2.00	0.20-0.22	0.0-2.9	.37	.37		
	32-60	8-30	1.35-1.60	0.60-6.00	0.05-0.18	0.0-2.9	.32	.32		
JcfG:										
Judyville-------	0-5	5-18	1.40-1.70	2.00-6.00	0.14-0.17	0.0-2.9	.32	.32	2	3
	5-9	5-18	1.40-1.70	2.00-6.00	0.14-0.17	0.0-2.9	.32	.32		
	9-34	5-18	1.60-1.80	2.00-6.00	0.10-0.15	0.0-2.9	.10	.24		
	34-38	---	---	0.06-0.20	---	---	---	---		
KnqD2:										
Kendallville----	0-7	8-24	1.30-1.50	0.60-2.00	0.18-0.24	0.0-2.9	.43	.49	4	5
	7-11	20-35	1.40-1.60	0.60-2.00	0.14-0.17	0.0-2.9	.43	.43		
	11-34	23-45	1.40-1.65	0.60-2.00	0.12-0.16	3.0-5.9	.20	.28		
	34-60	12-35	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.43		
LbrA:										
Lafayette-------	0-13	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	6
	13-33	25-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.37	.37		
	33-47	22-30	1.50-1.70	0.60-2.00	0.12-0.18	3.0-5.9	.17	.20		
	47-61	15-22	1.60-1.80	0.60-6.00	0.08-0.12	0.0-2.9	.10	.15		
	61-70	1-5	1.70-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.05		
LdxAK:										
Landes----------	0-10	5-20	1.40-1.50	2.00-6.00	0.12-0.22	0.0-2.9	.24	.24	4	3
	10-38	5-20	1.40-1.55	2.00-6.00	0.10-0.20	0.0-2.9	.24	.24		
	38-60	5-18	1.45-1.65	2.00-20.00	0.06-0.12	0.0-2.9	.15	.15		
LfuAI:										
Lash------------	0-10	5-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	.24	.24	4	5
	10-18	5-20	1.40-1.50	2.00-6.00	0.13-0.15	0.0-2.9	.24	.24		
	18-40	5-18	1.50-1.60	2.00-6.00	0.10-0.15	0.0-2.9	.24	.24		
	40-60	5-18	1.45-1.65	6.00-20.00	0.05-0.15	0.0-2.9	.15	.15		
LfzB2:										
Lauramie--------	0-8	10-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	5
	8-19	15-32	1.40-1.70	0.60-2.00	0.18-0.22	3.0-5.9	.43	.43		
	19-51	20-32	1.50-1.70	0.60-2.00	0.14-0.19	3.0-5.9	.32	.32		
	51-58	10-25	1.50-1.70	0.60-2.00	0.13-0.16	0.0-2.9	.32	.32		
	58-70	8-15	1.50-1.75	0.60-2.00	0.08-0.15	0.0-2.9	.37	.43		
LugA:										
Loudonville-----	0-10	18-25	1.30-1.60	0.60-2.00	0.18-0.24	0.0-2.9	.32	.32	3	6
	10-24	27-35	1.40-1.60	0.60-2.00	0.14-0.21	3.0-5.9	.37	.37		
	24-31	27-40	1.40-1.60	0.60-2.00	0.12-0.19	3.0-5.9	.24	.28		
	31-36	27-40	1.40-1.60	0.60-2.00	0.07-0.11	3.0-5.9	.10	.32		
	36-80	---	---	0.06-0.20	---	---	---	---		
LugB2:										
Loudonville-----	0-8	18-25	1.30-1.60	0.60-2.00	0.18-0.24	0.0-2.9	.32	.32	3	6
	8-24	27-35	1.40-1.60	0.60-2.00	0.14-0.21	3.0-5.9	.37	.37		
	24-31	27-40	1.40-1.60	0.60-2.00	0.12-0.19	3.0-5.9	.24	.28		
	31-36	27-40	1.40-1.60	0.60-2.00	0.07-0.11	3.0-5.9	.10	.32		
	36-80	---	---	0.06-0.20	---	---	---	---		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
LugC2:										
Loudonville-----	0-7	18-25	1.30-1.60	0.60-2.00	0.18-0.24	0.0-2.9	.32	.32	3	6
	7-24	27-35	1.40-1.60	0.60-2.00	0.14-0.21	3.0-5.9	.37	.37		
	24-31	27-40	1.40-1.60	0.60-2.00	0.12-0.19	3.0-5.9	.24	.28		
	31-36	27-40	1.40-1.60	0.60-2.00	0.07-0.11	3.0-5.9	.10	.32		
	36-80	---	---	0.06-0.20	---	---	---	---		
LuhC:										
Loudonville-----	0-3	18-25	1.30-1.60	0.60-2.00	0.18-0.24	0.0-2.9	.32	.32	1	3
	3-6	18-35	1.40-1.60	0.60-2.00	0.14-0.21	3.0-5.9	.37	.37		
	6-20	27-40	1.40-1.60	0.60-2.00	0.12-0.19	3.0-5.9	.24	.28		
	20-80	---	---	0.06-0.20	---	---	---	---		
MamA:										
Mahalasville----	0-15	27-35	1.20-1.65	0.60-2.00	0.20-0.26	3.0-5.9	.28	.28	5	7
	15-33	25-38	1.40-1.70	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	33-52	8-27	1.40-1.60	0.60-2.00	0.10-0.18	0.0-2.9	.37	.37		
	52-60	3-18	1.50-1.70	2.00-6.00	0.19-0.21	0.0-2.9	.43	.43		
MaoA:										
Mahalaland------	0-13	28-35	1.20-1.60	0.60-2.00	0.22-0.24	3.0-5.9	.28	.28	4	7
	13-33	30-38	1.40-1.60	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	33-46	5-30	1.50-1.70	2.00-6.00	0.10-0.18	0.0-2.9	.37	.37		
	46-80	1-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.05	.05		
MapA:										
Mahalasville, bedrock substratum----	0-13	28-35	1.20-1.65	0.60-2.00	0.20-0.26	3.0-5.9	.28	.28	4	7
	13-40	28-38	1.40-1.70	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	40-50	20-35	1.50-1.70	0.60-2.00	0.15-0.19	3.0-5.9	.37	.37		
	50-59	2-10	1.60-1.80	2.00-6.00	0.03-0.05	0.0-2.9	.15	.15		
	59-80	---	---	0.06-0.20	---	---	---	---		
MecB2:										
Martinsville----	0-8	12-20	1.40-1.70	0.60-2.00	0.17-0.19	0.0-2.9	.32	.32	4	6
	8-43	22-31	1.50-1.70	0.60-2.00	0.15-0.20	3.0-5.9	.28	.28		
	43-53	15-28	1.50-1.70	0.60-2.00	0.10-0.18	0.0-2.9	.28	.28		
	53-60	10-30	1.50-1.70	0.60-2.00	0.08-0.13	0.0-2.9	.32	.37		
MjuA:										
Mellott---------	0-9	10-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	5
	9-28	18-35	1.40-1.70	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	28-42	20-27	1.50-1.70	0.60-2.00	0.13-0.19	0.0-2.9	.24	.24		
	42-50	12-20	1.20-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.28	.28		
	50-60	12-18	1.50-1.75	0.60-2.00	0.08-0.15	0.0-2.9	.32	.37		
MqlG:										
Minnehaha-------	0-3	20-34	1.40-1.60	2.00-6.00	0.05-0.15	3.0-5.9	.28	.32	5	6
	3-60	22-34	1.40-1.70	2.00-6.00	0.02-0.10	3.0-5.9	.15	.24		
MrcA:										
Mitiwanga-------	0-6	11-20	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	2	6
	6-11	11-20	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43		
	11-28	20-35	1.50-1.70	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	28-33	10-30	1.50-1.70	2.00-6.00	0.10-0.15	0.0-2.9	.10	.24		
	33-80	---	---	0.06-0.20	---	---	---	---		
ObmB2:										
Octagon---------	0-8	10-27	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.37	.37	4	6
	8-37	18-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	37-60	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.37	.49		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*				
ObmC2:										
Octagon---------	0-7	10-27	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.37	.37	4	6
	7-37	18-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	37-60	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.37	.49		
ObxA:										
Ockley----------	0-10	10-20	1.30-1.60	0.60-2.00	0.18-0.26	0.0-2.9	.43	.43	4	5
	10-15	10-22	1.30-1.60	0.60-2.00	0.17-0.24	0.0-2.9	.43	.43		
	15-18	22-34	1.40-1.60	0.60-2.00	0.16-0.22	0.0-5.9	.32	.37		
	18-37	22-34	1.40-1.60	0.60-2.00	0.13-0.20	0.0-5.9	.32	.37		
	37-49	10-32	1.40-1.70	0.60-6.00	0.07-0.18	0.0-5.9	.10	.20		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
ObxB2:										
Ockley----------	0-8	10-20	1.30-1.60	0.60-2.00	0.18-0.26	0.0-2.9	.43	.43	4	5
	8-15	10-22	1.30-1.60	0.60-2.00	0.17-0.24	0.0-2.9	.43	.43		
	15-18	22-34	1.40-1.60	0.60-2.00	0.16-0.22	0.0-5.9	.32	.37		
	18-37	22-34	1.40-1.60	0.60-2.00	0.13-0.20	0.0-5.9	.32	.37		
	37-49	10-32	1.40-1.70	0.60-6.00	0.07-0.18	0.0-5.9	.10	.20		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
ObxC2:										
Ockley----------	0-7	10-20	1.30-1.60	0.60-2.00	0.18-0.26	0.0-2.9	.43	.43	4	5
	7-15	10-22	1.30-1.60	0.60-2.00	0.17-0.24	0.0-2.9	.43	.43		
	15-18	22-34	1.40-1.60	0.60-2.00	0.16-0.22	0.0-5.9	.32	.37		
	18-37	22-34	1.40-1.60	0.60-2.00	0.13-0.20	0.0-5.9	.32	.37		
	37-49	10-32	1.40-1.70	0.60-6.00	0.07-0.18	0.0-5.9	.10	.20		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
ObxD2:										
Ockley----------	0-7	10-20	1.30-1.60	0.60-2.00	0.18-0.26	0.0-2.9	.43	.43	4	5
	7-15	10-22	1.30-1.60	0.60-2.00	0.17-0.24	0.0-2.9	.43	.43		
	15-18	22-34	1.40-1.60	0.60-2.00	0.16-0.22	0.0-5.9	.32	.37		
	18-37	22-34	1.40-1.60	0.60-2.00	0.13-0.20	0.0-5.9	.32	.37		
	37-49	10-32	1.40-1.70	0.60-6.00	0.07-0.18	0.0-5.9	.10	.20		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
Pg:										
Pits, gravel.										
PgaA:										
Pella-----------	0-15	25-35	1.20-1.65	0.60-2.00	0.20-0.26	3.0-5.9	.24	.24	5	7
	15-23	28-40	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	23-31	15-30	1.40-1.60	0.60-2.00	0.15-0.20	0.0-2.9	.49	.49		
	31-60	10-30	1.50-1.70	0.60-2.00	0.08-0.15	0.0-2.9	.55	.55		
PnwBQ:										
Pinevillage-----	0-8	7-18	1.40-1.70	2.00-6.00	0.11-0.13	0.0-2.9	.10	.15	5	8
	8-45	7-18	1.50-1.70	2.00-6.00	0.07-0.15	0.0-2.9	.05	.15		
	45-60	7-18	1.60-1.80	2.00-6.00	0.02-0.05	0.0-2.9	.05	.17		
PvsA:										
Princeton-------	0-10	5-20	1.40-1.50	0.60-2.00	0.13-0.18	0.0-2.9	.24	.24	5	3
	10-41	18-25	1.50-1.60	0.60-2.00	0.07-0.18	0.0-2.9	.28	.28		
	41-60	8-18	1.60-1.70	2.00-6.00	0.07-0.14	0.0-2.9	.24	.24		
	60-80	4-10	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.17	.17		
PvsB2:										
Princeton-------	0-8	5-20	1.40-1.50	0.60-2.00	0.13-0.18	0.0-2.9	.24	.24	5	3
	8-41	18-25	1.50-1.60	0.60-2.00	0.07-0.18	0.0-2.9	.28	.28		
	41-60	8-18	1.60-1.70	2.00-6.00	0.07-0.14	0.0-2.9	.24	.24		
	60-80	4-10	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.17	.17		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
PvsC2:										
Princeton-------	0-8	5-20	1.40-1.50	0.60-2.00	0.13-0.18	0.0-2.9	.24	.24	5	3
	8-41	18-25	1.50-1.60	0.60-2.00	0.07-0.18	0.0-2.9	.28	.28		
	41-60	8-18	1.60-1.70	2.00-6.00	0.07-0.14	0.0-2.9	.24	.24		
	60-80	4-10	1.50-1.70	6.00-20.00	0.06-0.08	0.0-2.9	.17	.17		
RbfA:										
Ragsdale--------	0-13	18-30	1.20-1.65	0.60-2.00	0.20-0.26	0.0-2.9	.32	.32	5	7
	13-50	20-35	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.37	.37		
	50-60	10-20	1.40-1.60	0.60-2.00	0.20-0.22	0.0-2.9	.55	.55		
RbuB2:										
Rainsville------	0-8	13-25	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	5
	8-13	24-30	1.40-1.60	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	13-30	20-30	1.40-1.60	0.60-2.00	0.17-0.19	3.0-5.9	.43	.43		
	30-42	20-30	1.40-1.60	0.60-2.00	0.14-0.18	3.0-5.9	.32	.37		
	42-48	18-25	1.50-1.70	0.20-0.60	0.17-0.19	0.0-2.9	.37	.43		
	48-60	15-22	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
RbuC2:										
Rainsville------	0-6	13-25	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	5
	6-13	24-30	1.40-1.60	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	13-30	20-30	1.40-1.60	0.60-2.00	0.17-0.19	3.0-5.9	.43	.43		
	30-42	20-30	1.40-1.60	0.60-2.00	0.14-0.18	3.0-5.9	.32	.37		
	42-48	18-25	1.50-1.70	0.20-0.60	0.17-0.19	0.0-2.9	.37	.43		
	48-60	15-22	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
RdvA:										
Raub------------	0-13	11-25	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	6
	13-37	27-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	37-60	20-32	1.50-1.70	0.20-0.60	0.12-0.16	0.0-2.9	.28	.32		
	60-70	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
RetA:										
Rensselaer------	0-8	27-32	1.30-1.50	0.60-2.00	0.17-0.23	0.0-2.9	.24	.24	5	7
	8-14	27-32	1.30-1.50	0.60-2.00	0.17-0.23	0.0-2.9	.24	.24		
	14-42	20-35	1.40-1.60	0.60-2.00	0.16-0.19	3.0-5.9	.28	.28		
	42-60	8-20	1.50-1.70	0.60-6.00	0.19-0.21	0.0-2.9	.20	.20		
RosAK:										
Rockmill--------	0-8	10-27	1.40-1.50	0.60-2.00	0.16-0.21	0.0-2.9	.37	.37	5	5
	8-20	15-28	1.40-1.60	0.60-2.00	0.15-0.20	0.0-2.9	.24	.24		
	20-60	0-5	0.30-0.60	2.00-20.00	0.35-0.45	---	---	---		
RqaE:										
Rodman----------	0-10	8-25	1.60-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.10	.28	3	8
	10-18	5-25	1.50-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.05	.24		
	18-80	0-10	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
RqaG:										
Rodman----------	0-10	8-25	1.60-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.10	.28	3	8
	10-18	5-25	1.50-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.05	.24		
	18-80	0-10	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
RtxAK:										
Rossburg--------	0-9	13-27	1.20-1.50	0.60-2.00	0.19-0.24	0.0-2.9	.37	.37	5	6
	9-21	13-27	1.20-1.50	0.60-2.00	0.19-0.24	0.0-2.9	.37	.37		
	21-49	18-27	1.25-1.60	0.60-2.00	0.15-0.22	0.0-2.9	.37	.37		
	49-60	5-15	1.30-1.60	2.00-6.00	0.05-0.15	0.0-2.9	.24	.28		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
RuxA:										
Raub------------	0-13	11-25	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	4	6
	13-37	27-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.43	.43		
	37-60	20-32	1.50-1.70	0.20-0.60	0.12-0.16	0.0-2.9	.28	.32		
	60-70	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
Brenton---------	0-12	20-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.32	.32	5	6
	12-34	25-35	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.37	.37		
	34-58	20-30	1.40-1.60	0.60-2.00	0.10-0.18	3.0-5.9	.37	.37		
	58-65	8-25	1.50-1.70	0.60-2.00	0.19-0.21	0.0-2.9	.32	.32		
RyfA:										
Rush------------	0-10	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	5
	10-34	22-30	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.43	.43		
	34-46	20-30	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.17	.20		
	46-53	15-25	1.40-1.60	0.60-2.00	0.10-0.16	0.0-2.9	.10	.20		
	53-62	8-10	1.40-1.60	0.60-6.00	0.08-0.10	0.0-2.9	.05	.17		
	62-70	2-6	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
RyfB2:										
Rush------------	0-8	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	5
	8-34	22-30	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.43	.43		
	34-46	20-30	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.17	.20		
	46-53	15-25	1.40-1.60	0.60-2.00	0.10-0.16	0.0-2.9	.10	.20		
	53-62	8-10	1.40-1.60	0.60-6.00	0.08-0.10	0.0-2.9	.05	.17		
	62-70	2-6	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
RywB2:										
Russell---------	0-8	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	8-13	25-33	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.43	.43		
	13-28	27-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	28-53	23-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	53-58	20-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	58-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
RywC2:										
Russell---------	0-4	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	5	5
	4-13	25-33	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.43	.43		
	13-28	27-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	28-53	23-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	53-58	20-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	58-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
RywD2:										
Russell---------	0-6	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	6-13	25-33	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.43	.43		
	13-28	27-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	28-53	23-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	53-58	20-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	58-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
RzcE:										
Russell---------	0-3	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	3-13	25-33	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.43	.43		
	13-28	27-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	28-53	23-33	1.50-1.70	0.60-2.00	0.14-0.17	3.0-5.9	.32	.37		
	53-58	20-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	58-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
RzcE:										
Strawn----------	0-3	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37	3	6
	3-9	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37		
	9-16	18-35	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.28	.32		
	16-60	12-18	1.60-1.80	0.06-0.20	0.02-0.04	0.0-2.9	.32	.43		
SldAK:										
Shoals----------	0-8	18-27	1.40-1.50	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	6
	8-33	18-32	1.40-1.60	0.60-2.00	0.15-0.22	0.0-2.9	.28	.28		
	33-60	18-27	1.40-1.60	0.60-2.00	0.15-0.22	0.0-2.9	.28	.28		
SlyA:										
Silverwood------	0-8	10-17	1.40-1.60	0.60-2.00	0.15-0.23	0.0-2.9	.37	.37	4	5
	8-14	18-27	1.40-1.60	0.60-2.00	0.15-0.22	3.0-5.9	.20	.28		
	14-25	18-42	1.60-1.70	0.60-2.00	0.09-0.12	3.0-5.9	.10	.15		
	25-49	18-42	1.60-1.70	0.60-6.00	0.03-0.08	3.0-5.9	.10	.15		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SlyB2:										
Silverwood------	0-7	10-17	1.40-1.60	0.60-2.00	0.15-0.23	0.0-2.9	.37	.37	4	5
	7-14	18-27	1.40-1.60	0.60-2.00	0.15-0.22	3.0-5.9	.20	.28		
	14-25	18-42	1.60-1.70	0.60-2.00	0.09-0.12	3.0-5.9	.10	.15		
	25-49	18-42	1.60-1.70	0.60-6.00	0.03-0.08	3.0-5.9	.10	.15		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SlzA:										
Silverwood------	0-8	10-17	1.40-1.60	0.60-2.00	0.13-0.20	0.0-2.9	.28	.28	4	5
	8-14	18-27	1.40-1.60	0.60-2.00	0.15-0.22	3.0-5.9	.20	.28		
	14-25	18-42	1.60-1.70	0.60-2.00	0.09-0.12	3.0-5.9	.10	.15		
	25-49	18-42	1.60-1.70	0.60-6.00	0.03-0.08	3.0-5.9	.10	.15		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SlzB2:										
Silverwood------	0-7	10-17	1.40-1.60	0.60-2.00	0.13-0.20	0.0-2.9	.28	.28	4	5
	7-14	18-27	1.40-1.60	0.60-2.00	0.15-0.22	3.0-5.9	.20	.28		
	14-25	18-42	1.60-1.70	0.60-2.00	0.09-0.12	3.0-5.9	.10	.15		
	25-49	18-42	1.60-1.70	0.60-6.00	0.03-0.08	3.0-5.9	.10	.15		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SlzC2:										
Silverwood------	0-6	10-17	1.40-1.60	0.60-2.00	0.13-0.20	0.0-2.9	.28	.28	4	6
	6-14	18-27	1.40-1.60	0.60-2.00	0.15-0.22	3.0-5.9	.20	.28		
	14-25	18-42	1.60-1.70	0.60-2.00	0.09-0.12	3.0-5.9	.10	.15		
	25-49	18-42	1.60-1.70	0.60-6.00	0.03-0.08	3.0-5.9	.10	.15		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SlzD2:										
Silverwood------	0-5	10-17	1.40-1.60	0.60-2.00	0.13-0.20	0.0-2.9	.28	.28	4	6
	5-14	18-27	1.40-1.60	0.60-2.00	0.15-0.22	3.0-5.9	.20	.28		
	14-25	18-42	1.60-1.70	0.60-2.00	0.09-0.12	3.0-5.9	.10	.15		
	25-49	18-42	1.60-1.70	0.60-6.00	0.03-0.08	3.0-5.9	.10	.15		
	49-80	2-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SnlAP:										
Southwest-------	0-10	18-27	1.30-1.60	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	6
	10-23	18-39	1.40-1.70	0.60-2.00	0.18-0.22	0.0-2.9	.37	.37		
	23-34	18-39	1.40-1.70	0.20-0.60	0.20-0.24	3.0-5.9	.28	.28		
	34-45	18-35	1.40-1.70	0.20-0.60	0.17-0.22	3.0-5.9	.37	.37		
	45-75	18-35	1.40-1.70	0.20-0.60	0.21-0.24	3.0-5.9	.28	.28		
	75-80	15-32	1.40-1.75	0.20-0.60	0.08-0.22	3.0-5.9	.43	.43		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*				
SngA:										
Sleeth----------	0-9	17-24	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	5
	9-14	17-24	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43		
	14-38	25-35	1.50-1.70	0.60-2.00	0.07-0.18	3.0-5.9	.17	.20		
	38-50	15-35	1.50-1.70	0.60-2.00	0.07-0.18	3.0-5.9	.15	.24		
	50-60	2-5	1.60-1.80	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SobAI:										
Sloan-----------	0-15	27-40	1.25-1.50	0.60-2.00	0.18-0.22	3.0-5.9	.24	.24	5	7
	15-45	22-40	1.25-1.55	0.20-2.00	0.15-0.19	3.0-5.9	.37	.20		
	45-60	10-35	1.20-1.50	0.20-2.00	0.13-0.18	0.0-2.9	.37	.28		
Beaucoup--------	0-10	18-35	1.20-1.50	0.60-2.00	0.21-0.23	3.0-5.9	.32	.32	5	7
	10-15	18-35	1.20-1.50	0.60-2.00	0.21-0.23	3.0-5.9	.32	.32		
	15-40	27-35	1.40-1.60	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	40-49	15-30	1.40-1.60	0.60-2.00	0.18-0.22	3.0-5.9	.43	.43		
	49-60	10-30	1.50-1.70	0.60-2.00	0.18-0.22	3.0-5.9	.49	.49		
SseB2:										
St. Charles-----	0-9	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	6
	9-49	20-35	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.43	.43		
	49-63	11-27	1.50-1.70	0.60-2.00	0.09-0.21	0.0-2.9	.43	.43		
	63-70	10-25	1.50-1.70	0.60-2.00	0.19-0.21	0.0-2.9	.43	.43		
SteA:										
Starks----------	0-11	11-20	1.20-1.50	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	6
	11-36	22-35	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.37	.37		
	36-49	18-30	1.40-1.60	0.60-2.00	0.10-0.18	3.0-5.9	.32	.32		
	49-60	8-25	1.50-1.70	0.60-2.00	0.19-0.21	0.0-2.9	.32	.32		
SvqE:										
Strawn----------	0-3	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37	3	6
	3-9	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37		
	9-16	18-35	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.28	.32		
	16-60	12-18	1.60-1.80	0.06-0.20	0.02-0.04	0.0-2.9	.32	.43		
SvqG:										
Strawn----------	0-6	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37	3	6
	6-18	18-35	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.28	.32		
	18-60	12-18	1.60-1.80	0.06-0.20	0.02-0.04	0.0-2.9	.32	.43		
SwdE:										
Strawn----------	0-3	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37	5	6
	3-9	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37		
	9-16	18-35	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.28	.32		
	16-60	12-18	1.60-1.80	0.06-0.20	0.02-0.04	0.0-2.9	.32	.43		
Rodman----------	0-10	8-25	1.60-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.10	.28	3	8
	10-18	5-25	1.50-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.05	.24		
	18-80	0-10	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
SwdG:										
Strawn----------	0-6	18-27	1.30-1.60	0.60-2.00	0.17-0.22	0.0-2.9	.37	.37	5	6
	6-18	18-35	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.28	.32		
	18-60	12-18	1.60-1.80	0.06-0.20	0.02-0.04	0.0-2.9	.32	.43		
Rodman----------	0-10	8-25	1.60-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.10	.28	3	8
	10-18	5-25	1.50-1.70	2.00-6.00	0.08-0.22	0.0-2.9	.05	.24		
	18-80	0-10	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors Kw	Kf	T	Wind erodi-bility group
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*				
TfdA:										
Throckmorton----	0-9	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	4	5
	9-34	25-34	1.40-1.70	0.60-2.00	0.18-0.22	3.0-5.9	.43	.43		
	34-45	15-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	45-58	15-25	1.50-1.70	0.20-0.60	0.04-0.12	0.0-2.9	.32	.37		
	58-65	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.37	.43		
TfdB:										
Throckmorton----	0-10	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	4	5
	10-32	25-34	1.40-1.70	0.60-2.00	0.18-0.22	3.0-5.9	.43	.43		
	32-50	15-30	1.50-1.70	0.60-2.00	0.12-0.16	0.0-2.9	.32	.37		
	50-58	15-25	1.50-1.70	0.20-0.60	0.04-0.12	0.0-2.9	.32	.37		
	58-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.37	.43		
ThrA:										
Treaty----------	0-14	28-35	1.20-1.65	0.60-2.00	0.20-0.26	0.0-2.9	.28	.28	5	7
	14-36	28-35	1.40-1.70	0.60-2.00	0.14-0.21	3.0-5.9	.37	.37		
	36-59	20-35	1.50-1.70	0.60-1.00	0.12-0.16	3.0-5.9	.32	.32		
	59-70	12-18	1.50-1.75	0.20-0.60	0.02-0.04	0.0-2.9	.32	.37		
TlxA:										
Toronto---------	0-9	18-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	4	5
	9-12	18-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37		
	12-32	24-35	1.40-1.70	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	32-53	20-30	1.50-1.70	0.60-2.00	0.15-0.19	3.0-5.9	.32	.37		
	53-60	12-18	1.70-1.90	0.01-0.20	0.05-0.10	0.0-2.9	.32	.37		
TmcA:										
Totanang--------	0-12	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	6
	12-34	27-35	1.40-1.70	0.60-2.00	0.18-0.20	3.0-5.9	.37	.37		
	34-62	10-28	1.50-1.70	2.00-6.00	0.08-0.18	0.0-2.9	.10	.17		
	62-80	3-8	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
UbyE:										
Udorthents.										
Uea:										
Urban land.										
WkmA:										
Waupecan--------	0-11	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	6
	11-35	25-35	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.37	.37		
	35-72	10-25	1.60-1.80	0.60-6.00	0.08-0.18	0.0-5.9	.10	.17		
	72-80	3-10	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
WkmB2:										
Waupecan--------	0-11	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	5	6
	11-35	25-35	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.37	.37		
	35-72	10-25	1.60-1.80	0.60-6.00	0.08-0.18	0.0-5.9	.10	.17		
	72-80	3-10	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
WmnA:										
Waynetown-------	0-14	10-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	4	5
	14-32	27-34	1.40-1.70	0.60-2.00	0.16-0.21	3.0-5.9	.43	.43		
	32-45	20-27	1.30-1.60	0.60-2.00	0.10-0.18	3.0-5.9	.17	.20		
	45-70	20-30	1.60-1.70	0.60-2.00	0.06-0.13	3.0-5.9	.05	.17		
	70-75	1-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*				
WmpA:										
Wea-------------	0-10	12-22	1.30-1.45	0.60-2.00	0.17-0.24	0.0-2.9	.32	.32	5	5
	10-20	20-32	1.40-1.60	0.60-2.00	0.16-0.21	3.0-5.9	.28	.28		
	20-44	18-30	1.60-1.70	0.60-2.00	0.08-0.18	3.0-5.9	.10	.15		
	44-54	8-10	1.40-1.60	0.60-6.00	0.08-0.10	0.0-2.9	.05	.17		
	54-80	1-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
WmpB2:										
Wea-------------	0-8	12-22	1.30-1.45	0.60-2.00	0.17-0.24	0.0-2.9	.32	.32	5	5
	8-16	20-32	1.40-1.60	0.60-2.00	0.16-0.21	3.0-5.9	.28	.28		
	16-44	18-30	1.60-1.70	0.60-2.00	0.08-0.18	3.0-5.9	.10	.15		
	44-54	8-10	1.40-1.60	0.60-6.00	0.08-0.10	0.0-2.9	.05	.17		
	54-80	1-5	1.60-2.10	20.00-60.00	0.02-0.04	0.0-2.9	.02	.10		
WqvA:										
Westland--------	0-10	27-32	1.30-1.60	0.60-2.00	0.17-0.23	3.0-5.9	.20	.20	4	7
	10-21	27-35	1.50-1.70	0.60-2.00	0.15-0.20	3.0-5.9	.28	.28		
	21-47	10-30	1.50-1.70	0.60-2.00	0.10-0.20	0.0-2.9	.10	.24		
	47-60	2-5	1.60-2.10	20.00-60.00	0.03-0.06	0.0-2.9	.02	.10		
WsuA:										
Whitaker--------	0-9	8-19	1.30-1.60	0.60-2.00	0.18-0.24	0.0-2.9	.28	.28	5	5
	9-17	8-19	1.30-1.60	0.60-2.00	0.18-0.24	0.0-2.9	.28	.28		
	17-39	18-33	1.40-1.60	0.60-2.00	0.15-0.19	3.0-5.9	.32	.32		
	39-48	12-33	1.40-1.60	0.60-2.00	0.15-0.19	3.0-5.9	.32	.32		
	48-60	3-18	1.50-1.70	0.60-6.00	0.19-0.21	0.0-2.9	.32	.32		
WtaA:										
Whitaker--------	0-12	8-19	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.37	.37	5	5
	12-47	18-33	1.40-1.60	0.60-2.00	0.15-0.19	3.0-5.9	.32	.32		
	47-80	3-18	1.50-1.70	0.60-6.00	0.19-0.21	0.0-2.9	.32	.32		
WufB2:										
Williamstown----	0-9	14-26	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	6
	9-33	27-35	1.50-1.70	0.60-2.00	0.12-0.16	3.0-5.9	.32	.37		
	33-37	18-27	1.60-1.80	0.20-0.60	0.04-0.12	0.0-2.9	.37	.43		
	37-80	12-26	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.43	.49		
WvaA:										
Wingate---------	0-9	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	4	5
	9-12	15-27	1.35-1.65	0.60-2.00	0.21-0.23	0.0-2.9	.43	.43		
	12-27	24-35	1.45-1.70	0.60-2.00	0.18-0.22	3.0-5.9	.37	.37		
	27-52	20-30	1.40-1.70	0.60-2.00	0.15-0.19	3.0-5.9	.32	.32		
	52-60	15-27	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.37	.37		
WvaB2:										
Wingate---------	0-9	15-27	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.37	.37	4	5
	9-38	24-35	1.35-1.65	0.60-2.00	0.18-0.22	3.0-5.9	.37	.37		
	38-70	20-30	1.40-1.70	0.60-2.00	0.15-0.19	3.0-5.9	.32	.32		
	70-80	15-27	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.37	.37		
XabA:										
Xenia-----------	0-10	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	10-30	27-35	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.43	.43		
	30-50	24-35	1.50-1.70	0.60-1.00	0.14-0.17	3.0-5.9	.32	.37		
	50-58	20-30	1.50-1.70	0.60-1.00	0.12-0.16	0.0-2.9	.32	.37		
	58-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		

Table 16.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors Kw	Kf	T	Wind erodi- bility group
	In	Pct	g/cc	In/hr	In/in	Pct				
XabB2:										
Xenia-----------	0-8	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.49	.49	4	5
	8-30	27-35	1.40-1.70	0.60-2.00	0.17-0.20	3.0-5.9	.43	.43		
	30-50	24-35	1.50-1.70	0.60-1.00	0.14-0.17	3.0-5.9	.32	.37		
	50-58	20-30	1.50-1.70	0.60-1.00	0.12-0.16	0.0-2.9	.32	.37		
	58-80	12-18	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
XfuB2:										
Miami-----------	0-8	7-26	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	5
	8-13	24-35	1.40-1.60	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	13-31	27-35	1.40-1.70	0.60-2.00	0.07-0.21	3.0-5.9	.32	.37		
	31-36	15-25	1.60-1.80	0.20-0.60	0.07-0.17	0.0-2.9	.37	.43		
	36-80	10-20	1.75-2.00	0.01-0.20	0.01-0.03	0.0-2.9	.37	.43		
Rainsville------	0-8	13-25	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	5
	8-13	24-30	1.40-1.60	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	13-30	20-30	1.40-1.60	0.60-2.00	0.17-0.19	3.0-5.9	.43	.43		
	30-42	20-30	1.40-1.60	0.60-2.00	0.14-0.18	3.0-5.9	.32	.37		
	42-48	18-25	1.50-1.70	0.20-0.60	0.17-0.19	0.0-2.9	.37	.43		
	48-60	15-22	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
XfuC2:										
Miami-----------	0-7	7-26	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	5
	7-13	24-35	1.40-1.60	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	13-31	27-35	1.40-1.70	0.60-2.00	0.07-0.21	3.0-5.9	.32	.37		
	31-36	15-25	1.60-1.80	0.20-0.60	0.07-0.17	0.0-2.9	.37	.43		
	36-80	10-20	1.75-2.00	0.01-0.20	0.01-0.03	0.0-2.9	.37	.43		
Rainsville------	0-6	13-25	1.30-1.60	0.60-2.00	0.20-0.24	0.0-2.9	.43	.43	4	5
	6-13	24-30	1.40-1.60	0.60-2.00	0.16-0.20	3.0-5.9	.49	.49		
	13-30	20-30	1.40-1.60	0.60-2.00	0.17-0.19	3.0-5.9	.43	.43		
	30-42	20-30	1.40-1.60	0.60-2.00	0.14-0.18	3.0-5.9	.32	.37		
	42-48	18-25	1.50-1.70	0.20-0.60	0.17-0.19	0.0-2.9	.37	.43		
	48-60	15-22	1.75-2.00	0.01-0.20	0.02-0.04	0.0-2.9	.32	.37		
YedA:										
Yeddo-----------	0-8	11-20	1.20-1.65	0.60-2.00	0.22-0.24	0.0-2.9	.43	.43	5	5
	8-9	15-25	1.40-1.70	0.60-2.00	0.17-0.22	3.0-5.9	.37	.37		
	9-34	20-30	1.40-1.70	0.60-2.00	0.20-0.22	0.0-2.9	.37	.37		
	34-45	15-30	1.40-1.60	0.60-2.00	0.14-0.21	0.0-2.9	.55	.55		
	45-76	8-20	1.40-1.60	0.60-2.00	0.14-0.21	0.0-2.9	.55	.55		
	76-80	8-20	1.40-1.60	0.60-2.00	0.14-0.21	0.0-2.9	.37	.37		

Table 17.--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 equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
AbfA:					
Adeland---------	0-10	5.1-7.3	1.0-3.0	9.0-21	0
	10-13	4.5-6.5	0.5-1.0	15-35	0
	13-29	4.5-6.5	0.5-1.0	15-30	0
	29-34	4.5-6.0	0.5-1.0	15-25	0
	34-80	---	---	---	---
AbhAI:					
Adrian----------	0-36	5.1-7.3	55-75	125-200	0
	36-60	6.1-8.4	2.0-4.0	5.0-11	0-40
AjaAI:					
Allison---------	0-18	6.1-8.4	2.0-4.0	12-24	0-10
	18-51	6.1-8.4	0.5-1.0	11-23	0-20
	51-80	6.1-8.4	0.5-1.0	11-26	0-40
ApkA:					
Angatoka--------	0-9	4.5-7.3	1.0-3.0	8.0-24	0
	9-78	4.5-5.5	0.5-1.0	5.0-25	0
	78-80	7.4-8.4	0.0-0.5	0.0-2.0	25-55
AplA:					
Angatoka--------	0-8	4.5-7.3	1.0-3.0	8.0-24	0
	8-62	4.5-5.5	0.5-1.0	5.0-25	0
	62-70	5.1-7.8	0.0-0.5	6.0-17	0
	70-80	7.4-8.4	0.0-0.5	5.0-12	15-40
AplB2:					
Angatoka--------	0-7	4.5-7.3	1.0-3.0	8.0-24	0
	7-62	4.5-5.5	0.5-1.0	5.0-25	0
	62-70	5.1-7.8	0.0-0.5	6.0-17	0
	70-80	7.4-8.4	0.0-0.5	5.0-12	15-40
AplC2:					
Angatoka--------	0-4	4.5-7.3	1.0-3.0	8.0-24	0
	4-10	4.5-7.3	1.0-3.0	8.0-24	0
	10-62	4.5-5.5	0.5-1.0	5.0-25	0
	62-70	5.1-7.8	0.0-0.5	6.0-17	0
	70-80	7.4-8.4	0.0-0.5	5.0-12	15-40
AzqA:					
Ayrshire--------	0-12	5.6-7.3	1.0-3.0	4.0-13	0
	12-44	5.1-7.3	0.0-0.5	10-21	0
	44-80	6.6-8.4	0.0-0.5	3.0-13	0-10
BcgAI:					
Battleground----	0-10	7.4-8.4	2.0-5.0	12-26	5-10
	10-19	7.4-8.4	1.0-3.0	10-27	5-20
	19-80	7.4-8.4	0.5-1.0	7.0-23	5-25
BhyA:					
Birkbeck--------	0-10	5.1-7.3	1.0-3.0	6.0-12	0
	10-16	4.5-7.3	0.5-1.0	7.0-18	0
	16-55	4.5-7.3	0.0-0.5	10-22	0
	55-60	5.6-7.8	0.0-0.5	9.0-19	0-5
	60-66	7.4-8.4	0.0-0.5	5.0-12	15-40

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
BhyB2:					
Birkbeck--------	0-10	5.1-7.3	1.0-3.0	6.0-12	0
	10-16	4.5-7.3	0.5-1.0	7.0-18	0
	16-55	4.5-7.3	0.0-0.5	10-22	0
	55-60	5.6-7.8	0.0-0.5	9.0-19	0-5
	60-66	7.4-8.4	0.0-0.5	5.0-12	15-40
BvlAK:					
Brouillett------	0-11	6.1-7.8	3.0-6.0	10-25	0
	11-26	6.1-7.8	3.0-6.0	15-30	0
	26-42	6.1-7.8	1.0-4.0	12-28	0
	42-60	6.1-8.4	1.0-2.0	5.0-15	0-10
CbaA:					
Camden----------	0-9	5.1-7.3	1.0-2.0	8.0-20	0
	9-29	5.1-7.3	0.5-1.0	10-23	0
	29-64	5.1-7.3	0.5-1.0	8.0-20	0
	64-70	5.1-8.4	0.0-0.5	3.0-14	0-40
CbaB2:					
Camden----------	0-9	5.1-7.3	1.0-2.0	8.0-20	0
	9-29	5.1-7.3	0.5-1.0	10-23	0
	29-64	5.1-7.3	0.5-1.0	8.0-20	0
	64-70	5.1-8.4	0.0-0.5	3.0-14	0-40
CfrG:					
Cates-----------	0-4	4.5-6.5	1.0-4.0	5.0-15	0
	4-26	4.5-6.0	0.5-1.0	5.0-15	0
	26-36	4.5-6.0	0.0-0.5	5.0-15	0
	36-80	---	---	---	---
ChqA:					
Chalmers--------	0-9	5.6-7.3	3.0-6.0	17-37	0
	9-13	5.6-7.3	3.0-6.0	17-37	0
	13-30	6.1-7.8	1.0-3.0	10-27	0
	30-45	6.1-7.8	0.5-1.0	7.0-23	0-25
	45-60	7.4-8.4	0.5-1.0	6.0-13	15-40
CnaB:					
Coloma----------	0-8	4.5-6.5	0.5-1.0	3.0-8.0	0
	8-28	4.5-6.5	0.0-0.5	0.0-7.0	0
	28-60	4.5-7.3	0.0-0.5	1.0-8.0	0
CnaC:					
Coloma----------	0-8	4.5-6.5	0.5-1.0	3.0-8.0	0
	8-28	4.5-6.5	0.0-0.5	0.0-7.0	0
	28-60	4.5-7.3	0.0-0.5	1.0-8.0	0
CsuA:					
Crane-----------	0-10	5.6-7.3	2.0-4.0	12-26	0
	10-15	5.6-7.3	2.0-4.0	12-26	0
	15-36	5.6-7.3	0.5-2.0	11-25	0
	36-53	5.6-7.3	0.5-1.0	8.0-20	0-5
	53-60	7.4-8.4	0.0-0.5	1.0-7.0	25-55
CudA:					
Crosby----------	0-8	5.1-7.3	1.0-3.0	6.0-20	0
	8-11	5.1-7.3	1.0-2.0	6.0-18	0
	11-14	5.1-7.3	0.5-1.0	7.0-18	0
	14-28	5.1-7.3	0.5-1.0	15-29	0
	28-36	7.4-8.4	0.0-0.5	5.0-17	5-40
	36-80	7.4-8.4	0.0-0.5	4.0-16	20-50

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
DpbA:					
Drummer---------	0-15	5.6-7.8	3.0-6.0	7.0-33	0
	15-49	5.6-7.8	0.5-2.0	9.0-25	0
	49-57	6.1-8.4	0.5-1.0	10-22	0-20
	57-65	6.6-8.4	0.0-0.5	6.0-20	0-40
EcoA:					
Edwardsville----	0-16	5.6-7.3	4.0-6.0	20-30	0
	16-41	5.1-7.8	0.5-2.0	20-30	0
	41-80	5.6-8.4	0.0-0.5	12-20	0-15
EdeAK:					
Eel-------------	0-10	6.1-7.3	1.0-3.0	8.0-24	0-10
	10-34	6.1-7.8	1.0-3.0	8.0-24	0-20
	34-60	7.4-8.4	0.5-2.0	5.0-19	10-30
Beckville-------	0-11	6.6-7.8	2.0-4.0	7.0-19	0-10
	11-28	6.6-7.8	1.0-2.0	5.0-15	0-10
	28-60	7.4-8.4	0.5-1.0	4.0-13	10-30
EmdA:					
Elston----------	0-10	5.1-7.3	2.0-4.0	7.0-17	0
	10-20	5.1-7.3	2.0-4.0	7.0-17	0
	20-45	5.1-6.5	1.0-3.0	6.0-17	0
	45-72	5.1-6.5	0.0-0.5	2.0-7.0	0
	72-80	5.6-8.4	0.0-0.5	0.0-4.0	0-30
EmdB:					
Elston----------	0-12	5.1-7.3	2.0-4.0	7.0-17	0
	12-30	5.1-6.5	1.0-3.0	6.0-17	0
	30-48	5.1-6.5	0.0-0.5	2.0-7.0	0
	48-60	5.6-8.4	0.0-0.5	0.0-4.0	0-30
FamB:					
Fairpoint-------	0-5	5.1-7.8	0.0-0.5	7.0-15	0
	5-60	5.6-7.3	0.0-0.2	7.0-20	0
FdbA:					
Fincastle-------	0-10	5.1-7.3	1.0-3.0	10-20	0
	10-13	5.1-7.3	1.0-3.0	10-20	0
	13-27	4.5-6.5	0.5-1.0	15-25	0
	27-50	5.1-7.8	0.0-0.5	15-25	0-25
	50-59	7.4-8.4	0.0-0.5	5.0-15	15-40
	59-80	7.4-8.4	0.0-0.5	5.0-15	15-40
FdbB:					
Fincastle-------	0-10	5.1-7.3	1.0-3.0	10-20	0
	10-13	5.1-7.3	1.0-3.0	10-20	0
	13-27	4.5-6.5	0.5-1.0	15-25	0
	27-50	5.1-7.8	0.0-0.5	15-25	0-25
	50-59	7.4-8.4	0.0-0.5	5.0-15	15-40
	59-80	7.4-8.4	0.0-0.5	5.0-15	15-40
FdnA:					
Fincastle-------	0-10	5.1-7.3	1.0-3.0	10-20	0
	10-13	5.1-7.3	1.0-3.0	10-20	0
	13-27	4.5-6.5	0.5-1.0	15-25	0
	27-50	5.1-7.8	0.0-0.5	15-25	0-25
	50-59	7.4-8.4	0.0-0.5	5.0-15	15-40
	59-80	7.4-8.4	0.0-0.5	5.0-15	15-40

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	pH	Pct	meq/100 g	Pct
FdnA:					
Starks----------	0-11	5.1-7.3	1.0-3.0	6.0-18	0
	11-36	4.5-6.5	0.5-1.0	10-23	0
	36-49	5.1-7.8	0.5-1.0	8.0-20	0-20
	49-60	5.1-8.4	0.0-0.5	6.0-19	0-40
GcaAK:					
Genesee---------	0-8	6.6-8.4	1.0-3.0	10-25	0-30
	8-32	7.4-8.4	0.5-2.0	5.0-15	10-30
	32-60	7.4-8.4	1.0-2.0	5.0-15	5-30
JcfG:					
Judyville-------	0-5	3.5-6.0	2.0-5.0	8.0-15	0
	5-9	3.5-6.0	2.0-5.0	3.0-15	0
	9-34	3.5-5.5	0.5-2.0	3.0-15	0
	34-38	---	---	---	---
KnqD2:					
Kendallville----	0-7	5.6-7.3	1.0-3.0	8.0-20	0
	7-11	4.5-6.0	0.5-1.0	8.0-18	0
	11-34	5.6-7.8	0.0-0.5	10-28	0-25
	34-60	7.4-8.4	0.0-0.5	7.0-18	15-40
LbrA:					
Lafayette-------	0-13	5.6-7.3	2.0-4.0	10-23	0
	13-33	5.1-6.5	0.5-2.0	11-25	0
	33-47	5.6-6.5	0.5-1.0	10-20	0
	47-61	6.1-7.3	0.5-1.0	7.0-15	0-35
	61-70	7.4-8.4	0.0-0.5	0.0-4.0	25-55
LdxAK:					
Landes----------	0-10	5.6-8.4	2.0-5.0	6.0-22	0-10
	10-38	5.6-8.4	0.5-2.0	3.0-16	0-10
	38-60	5.6-8.4	0.5-1.0	3.0-14	0-20
LfuAI:					
Lash------------	0-10	7.4-8.4	1.0-3.0	5.0-18	5-10
	10-18	7.4-8.4	1.0-3.0	5.0-18	5-10
	18-40	7.4-8.4	1.0-3.0	5.0-17	10-20
	40-60	7.4-8.4	0.5-1.0	4.0-13	10-20
LfzB2:					
Lauramie--------	0-8	5.6-7.3	2.0-3.0	8.0-18	0
	8-19	5.1-6.5	0.5-2.0	7.0-23	0
	19-51	5.1-6.5	0.5-1.0	9.0-21	0
	51-58	6.6-7.8	0.5-1.0	5.0-13	0-25
	58-70	7.4-8.4	0.5-1.0	4.0-11	15-40
LugA:					
Loudonville-----	0-10	4.5-6.0	1.0-3.0	9.0-21	0
	10-24	4.5-6.0	0.5-1.0	12-23	0
	24-31	4.5-6.0	0.5-1.0	14-26	0
	31-36	4.5-6.0	0.5-1.0	13-26	0
	36-80	---	---	---	---
LugB2:					
Loudonville-----	0-8	4.5-6.0	1.0-3.0	9.0-21	0
	8-24	4.5-6.0	0.5-1.0	12-23	0
	24-31	4.5-6.0	0.5-1.0	14-26	0
	31-36	4.5-6.0	0.5-1.0	13-26	0
	36-80	---	---	---	---

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
LugC2:					
Loudonville-----	0-7	4.5-6.0	1.0-3.0	9.0-21	0
	7-24	4.5-6.0	0.5-1.0	12-23	0
	24-31	4.5-6.0	0.5-1.0	14-26	0
	31-36	4.5-6.0	0.5-1.0	13-26	0
	36-80	---	---	---	---
LuhC:					
Loudonville-----	0-3	4.5-6.0	1.0-3.0	9.0-21	0
	3-6	4.5-6.0	0.5-1.0	12-23	0
	6-20	4.5-6.0	0.5-1.0	14-26	0
	20-80	---	---	---	---
MamA:					
Mahalasville----	0-15	6.1-7.3	2.0-5.0	15-28	0
	15-33	6.1-7.3	1.0-2.0	12-25	0
	33-52	6.1-7.3	0.5-1.0	4.0-19	0
	52-60	7.4-8.4	0.0-0.5	1.0-12	10-30
MaoA:					
Mahalaland------	0-13	6.1-7.3	3.0-6.0	17-21	0
	13-33	6.1-7.3	0.5-2.0	13-25	0
	33-46	6.6-8.4	0.0-0.5	5.0-17	0-30
	46-80	7.4-8.4	0.0-0.5	1.0-4.0	10-30
MapA:					
Mahalasville, bedrock substratum----	0-13	6.1-7.3	2.0-5.0	17-21	0
	13-40	6.1-7.3	0.5-2.0	12-25	0
	40-50	6.6-7.8	0.5-1.0	9.0-23	0-30
	50-59	7.4-8.4	0.5-1.0	1.0-7.0	10-30
	59-80	---	---	---	---
MecB2:					
Martinsville----	0-8	5.1-7.3	0.5-2.0	9.0-20	0
	8-43	5.1-6.5	0.5-1.0	10-20	0
	43-53	5.1-7.8	0.5-1.0	6.0-19	0-20
	53-60	7.4-8.4	0.0-0.5	4.0-10	15-40
MjuA:					
Mellott---------	0-9	4.5-7.3	2.0-4.0	10-24	0
	9-28	4.5-6.0	0.5-2.0	10-24	0
	28-42	5.1-7.8	0.5-1.0	12-23	0
	42-50	5.1-7.8	0.5-1.0	5.0-14	0-25
	50-60	7.4-8.4	0.5-1.0	5.0-15	15-40
MqlG:					
Minnehaha-------	0-3	5.6-7.3	1.0-5.0	15-25	0
	3-60	5.6-7.3	0.5-4.0	10-16	0
MrcA:					
Mitiwanga-------	0-6	4.5-6.5	1.0-3.0	6.0-18	0
	6-11	4.5-6.5	1.0-3.0	6.0-18	0
	11-28	4.5-6.0	0.5-1.0	9.0-23	0
	28-33	4.5-6.5	0.0-0.5	8.0-22	0
	33-80	---	---	---	---
ObmB2:					
Octagon---------	0-8	5.6-7.3	2.0-4.0	10-24	0
	8-37	5.6-7.3	0.5-1.0	10-20	0
	37-60	7.4-8.4	0.5-1.0	5.0-11	15-40

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
ObmC2:					
Octagon----------	0-7	5.6-7.3	2.0-4.0	10-24	0
	7-37	5.6-7.3	0.5-1.0	10-20	0
	37-60	7.4-8.4	0.5-1.0	5.0-11	15-40
ObxA:					
Ockley----------	0-10	5.6-7.3	1.0-3.0	5.0-15	0
	10-15	5.6-7.3	0.5-2.0	5.0-15	0
	15-18	4.5-6.5	0.5-1.0	8.0-20	0
	18-37	4.5-6.5	0.5-1.0	8.0-20	0
	37-49	5.1-7.3	0.5-1.0	4.0-18	0
	49-80	7.4-8.4	0.0-0.5	1.0-3.0	20-50
ObxB2:					
Ockley----------	0-8	5.6-7.3	1.0-3.0	5.0-15	0
	8-15	5.6-7.3	0.5-2.0	5.0-15	0
	15-18	4.5-6.5	0.5-1.0	8.0-20	0
	18-37	4.5-6.5	0.5-1.0	8.0-20	0
	37-49	5.1-7.3	0.5-1.0	4.0-18	0
	49-80	7.4-8.4	0.0-0.5	1.0-3.0	20-50
ObxC2:					
Ockley----------	0-7	5.6-7.3	1.0-3.0	5.0-15	0
	7-15	5.6-7.3	0.5-2.0	5.0-15	0
	15-18	4.5-6.5	0.5-1.0	8.0-20	0
	18-37	4.5-6.5	0.5-1.0	8.0-20	0
	37-49	5.1-7.3	0.5-1.0	4.0-18	0
	49-80	7.4-8.4	0.0-0.5	1.0-3.0	20-50
ObxD2:					
Ockley----------	0-7	5.6-7.3	1.0-3.0	5.0-15	0
	7-15	5.6-7.3	0.5-2.0	5.0-15	0
	15-18	4.5-6.5	0.5-1.0	8.0-20	0
	18-37	4.5-6.5	0.5-1.0	8.0-20	0
	37-49	5.1-7.3	0.5-1.0	4.0-18	0
	49-80	7.4-8.4	0.0-0.5	1.0-3.0	20-50
Pg:					
Pits, gravel.					
PgaA:					
Pella-----------	0-15	6.1-7.8	4.0-6.0	21-33	0
	15-23	6.6-7.8	1.0-2.0	13-25	0
	23-31	6.6-7.8	0.5-1.0	7.0-20	0-30
	31-60	7.4-8.4	0.5-1.0	7.0-20	20-30
PnwBQ:					
Pinevillage-----	0-8	7.4-8.4	1.0-2.0	5.0-15	10-20
	8-45	7.4-8.4	0.5-1.0	4.0-13	10-20
	45-60	7.4-8.4	0.0-0.5	3.0-12	10-30
PvsA:					
Princeton-------	0-10	5.1-7.3	1.0-3.0	7.0-18	0
	10-41	4.5-7.3	0.5-1.0	8.0-17	0
	41-60	4.5-7.3	0.0-0.5	3.0-12	0
	60-80	5.1-8.4	0.0-0.5	2.0-7.0	0-40
PvsB2:					
Princeton-------	0-8	5.1-7.3	1.0-3.0	7.0-18	0
	8-41	4.5-7.3	0.5-1.0	8.0-17	0
	41-60	4.5-7.3	0.0-0.5	3.0-12	0
	60-80	5.1-8.4	0.0-0.5	2.0-7.0	0-40

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
PvsC2:					
Princeton-------	0-8	5.1-7.3	1.0-3.0	7.0-18	0
	8-41	4.5-7.3	0.5-1.0	8.0-17	0
	41-60	4.5-7.3	0.0-0.5	3.0-12	0
	60-80	5.1-8.4	0.0-0.5	2.0-7.0	0-40
RbfA:					
Ragsdale--------	0-13	6.1-7.3	2.0-5.0	11-25	0
	13-50	6.1-7.3	0.5-2.0	9.0-25	0-10
	50-60	7.4-8.4	0.0-0.5	4.0-13	10-30
RbuB2:					
Rainsville------	0-8	5.6-7.3	1.0-3.0	7.0-21	0
	8-13	5.6-7.3	0.5-1.0	11-20	0
	13-30	4.5-6.0	0.5-1.0	13-22	0
	30-42	4.5-6.0	0.5-1.0	13-22	0
	42-48	6.6-7.8	0.5-1.0	8.0-17	0-25
	48-60	7.4-8.4	0.0-0.5	6.0-14	15-40
RbuC2:					
Rainsville------	0-6	5.6-7.3	1.0-3.0	7.0-21	0
	6-13	5.6-7.3	0.5-1.0	11-20	0
	13-30	4.5-6.0	0.5-1.0	13-22	0
	30-42	4.5-6.0	0.5-1.0	13-22	0
	42-48	6.6-7.8	0.5-1.0	8.0-17	0-25
	48-60	7.4-8.4	0.0-0.5	6.0-14	15-40
RdvA:					
Raub------------	0-13	5.6-7.3	2.0-5.0	8.0-25	0
	13-37	5.1-6.5	0.5-2.0	12-25	0
	37-60	6.1-7.3	0.5-1.0	12-21	0-15
	60-70	7.4-8.4	0.5-1.0	6.0-12	15-40
RetA:					
Rensselaer------	0-8	6.1-7.3	2.0-5.0	15-28	0
	8-14	6.1-7.3	2.0-5.0	15-28	0
	14-42	6.1-7.8	0.5-2.0	9.0-25	0-20
	42-60	7.4-8.4	0.0-0.5	3.0-19	5-25
RosAK:					
Rockmill--------	0-8	5.1-7.8	2.0-4.0	8.0-24	0-20
	8-20	5.1-7.8	1.0-2.0	7.0-20	0-20
	20-60	5.1-7.8	55-75	125-200	0
RqaE:					
Rodman----------	0-10	6.6-7.8	2.0-6.0	7.0-27	0-15
	10-18	6.6-7.8	0.5-2.0	3.0-19	0-30
	18-80	7.4-8.4	0.0-0.5	0.0-7.0	20-55
RqaG:					
Rodman----------	0-10	6.6-7.8	2.0-6.0	7.0-27	0-15
	10-18	6.6-7.8	0.5-2.0	3.0-19	0-30
	18-80	7.4-8.4	0.0-0.5	0.0-7.0	20-55
RtxAK:					
Rossburg--------	0-9	6.1-7.8	4.0-8.0	9.0-24	0-20
	9-21	6.1-7.8	4.0-8.0	9.0-24	0-20
	21-49	6.1-7.8	0.5-2.0	7.0-16	0-20
	49-60	6.6-8.4	0.5-2.0	2.0-9.0	0-20

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
RuxA:					
Raub------------	0-13	5.6-7.3	2.0-5.0	8.0-25	0
	13-37	5.1-6.5	0.5-2.0	12-25	0
	37-60	6.1-7.3	0.5-1.0	12-21	0-15
	60-70	7.4-8.4	0.5-1.0	6.0-12	15-40
Brenton---------	0-12	5.6-7.8	3.0-5.0	14-26	0
	12-34	5.6-7.3	0.5-2.0	11-25	0
	34-58	5.6-7.8	0.5-1.0	9.0-20	0-20
	58-65	5.6-8.4	0.0-0.5	6.0-19	0-40
RyfA:					
Rush------------	0-10	5.1-7.3	1.0-3.0	6.0-15	0
	10-34	4.5-6.5	0.5-1.0	10-20	0
	34-46	4.5-6.5	0.5-1.0	9.0-20	0
	46-53	5.1-7.3	0.5-1.0	7.0-17	0
	53-62	6.6-7.8	0.0-0.5	3.0-7.0	0-35
	62-70	7.8-8.4	0.0-0.5	1.0-5.0	25-55
RyfB2:					
Rush------------	0-8	5.1-7.3	1.0-3.0	6.0-15	0
	8-34	4.5-6.5	0.5-1.0	10-20	0
	34-46	4.5-6.5	0.5-1.0	9.0-20	0
	46-53	5.1-7.3	0.5-1.0	7.0-17	0
	53-62	6.6-7.8	0.0-0.5	3.0-7.0	0-35
	62-70	7.8-8.4	0.0-0.5	1.0-5.0	25-55
RywB2:					
Russell---------	0-8	5.1-7.3	1.0-3.0	6.0-18	0
	8-13	4.5-6.0	0.5-1.0	10-19	0
	13-28	4.5-6.0	0.5-1.0	10-22	0
	28-53	5.1-7.3	0.5-1.0	10-22	0
	53-58	6.6-8.4	0.0-0.5	6.0-17	0-20
	58-80	7.4-8.4	0.0-0.5	5.0-12	15-40
RywC2:					
Russell---------	0-4	5.1-7.3	1.0-3.0	6.0-18	0
	4-13	4.5-6.0	0.5-1.0	10-19	0
	13-28	4.5-6.0	0.5-1.0	10-22	0
	28-53	5.1-7.3	0.5-1.0	10-22	0
	53-58	6.6-8.4	0.0-0.5	6.0-17	0-20
	58-80	7.4-8.4	0.0-0.5	5.0-12	15-40
RywD2:					
Russell---------	0-6	5.1-7.3	1.0-3.0	6.0-18	0
	6-13	4.5-6.0	0.5-1.0	10-19	0
	13-28	4.5-6.0	0.5-1.0	10-22	0
	28-53	5.1-7.3	0.5-1.0	10-22	0
	53-58	6.6-8.4	0.0-0.5	6.0-17	0-20
	58-80	7.4-8.4	0.0-0.5	5.0-12	15-40
RzcE:					
Russell---------	0-3	5.1-7.3	1.0-3.0	6.0-18	0
	3-13	4.5-6.0	0.5-1.0	10-19	0
	13-28	4.5-6.0	0.5-1.0	10-22	0
	28-53	5.1-7.3	0.5-1.0	10-22	0
	53-58	6.6-8.4	0.0-0.5	6.0-17	0-20
	58-80	7.4-8.4	0.0-0.5	5.0-12	15-40

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
RzcE:					
Strawn----------	0-3	5.6-7.3	1.0-3.0	9.0-22	0
	3-9	5.6-7.3	1.0-3.0	9.0-22	0
	9-16	5.6-7.8	0.5-2.0	11-25	0-30
	16-60	7.4-8.4	0.5-1.0	7.0-17	15-40
SldAK:					
Shoals----------	0-8	6.6-7.8	2.0-4.0	11-24	0-20
	8-33	6.6-8.4	0.5-2.0	8.0-24	0-30
	33-60	6.6-8.4	0.5-2.0	8.0-24	0-30
SlyA:					
Silverwood------	0-8	6.1-7.3	1.0-3.0	6.0-16	0
	8-14	6.1-7.3	0.5-1.0	8.0-23	0
	14-25	6.1-7.3	0.5-1.0	8.0-23	0
	25-49	6.1-7.3	0.5-1.0	8.0-23	0
	49-80	7.4-8.4	0.0-0.5	0.0-2.0	25-55
SlyB2:					
Silverwood------	0-7	6.1-7.3	1.0-3.0	6.0-16	0
	7-14	6.1-7.3	0.5-1.0	8.0-23	0
	14-25	6.1-7.3	0.5-1.0	8.0-23	0
	25-49	6.1-7.3	0.5-1.0	8.0-23	0
	49-80	7.4-8.4	0.0-0.5	0.0-2.0	25-55
SlzA:					
Silverwood------	0-8	6.1-7.3	1.0-3.0	6.0-16	0
	8-14	6.1-7.3	0.5-1.0	8.0-23	0
	14-25	6.1-7.3	0.5-1.0	8.0-23	0
	25-49	6.1-7.3	0.5-1.0	8.0-23	0
	49-80	7.4-8.4	0.0-0.5	0.0-2.0	25-55
SlzB2:					
Silverwood------	0-7	6.1-7.3	1.0-3.0	6.0-16	0
	7-14	6.1-7.3	0.5-1.0	8.0-23	0
	14-25	6.1-7.3	0.5-1.0	8.0-23	0
	25-49	6.1-7.3	0.5-1.0	8.0-23	0
	49-80	7.4-8.4	0.0-0.5	0.0-2.0	25-55
SlzC2:					
Silverwood------	0-6	6.1-7.3	1.0-3.0	6.0-16	0
	6-14	6.1-7.3	0.5-1.0	8.0-23	0
	14-25	6.1-7.3	0.5-1.0	8.0-23	0
	25-49	6.1-7.3	0.5-1.0	8.0-23	0
	49-80	7.4-8.4	0.0-0.5	0.0-2.0	25-55
SlzD2:					
Silverwood------	0-5	6.1-7.3	1.0-3.0	6.0-16	0
	5-14	6.1-7.3	0.5-1.0	8.0-23	0
	14-25	6.1-7.3	0.5-1.0	8.0-23	0
	25-49	6.1-7.3	0.5-1.0	8.0-23	0
	49-80	7.4-8.4	0.0-0.5	0.0-2.0	25-55
SngA:					
Sleeth----------	0-9	5.6-7.3	1.0-3.0	10-15	0
	9-14	5.6-7.3	1.0-3.0	10-15	0
	14-38	5.1-7.3	0.5-1.0	10-15	0
	38-50	5.6-7.8	0.0-0.5	10-15	0-30
	50-60	7.4-8.4	0.0-0.5	0.0-5.0	25-55

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
SnlAP:					
Southwest-------	0-10	6.1-7.3	1.0-3.0	10-15	0
	10-23	6.1-7.3	1.0-3.0	10-15	0
	23-34	6.1-7.3	3.0-6.0	20-36	0
	34-45	6.1-7.3	0.5-1.0	10.0-20	0
	45-75	6.1-7.8	2.0-5.0	10-33	0-15
	75-80	7.4-8.4	0.0-1.0	2.0-15	5-25
SobAI:					
Sloan-----------	0-15	6.1-7.8	2.0-5.0	19-29	0-10
	15-45	6.1-8.4	0.5-2.0	10-20	0-10
	45-60	6.6-8.4	0.0-0.5	4.0-18	0-30
Beaucoup--------	0-10	5.6-7.8	3.0-6.0	21-33	0-5
	10-15	5.6-7.8	3.0-6.0	21-33	0-5
	15-40	5.6-7.8	1.0-2.0	13-25	0-5
	40-49	6.1-8.4	0.5-1.0	7.0-20	0-5
	49-60	6.1-8.4	0.5-1.0	5.0-20	0-10
SseB2:					
St. Charles-----	0-9	5.1-7.8	1.0-3.0	6.0-18	0
	9-49	4.5-7.3	0.5-1.0	12-23	0
	49-63	5.1-7.3	0.0-0.5	8.0-20	0
	63-70	5.6-8.4	0.0-0.5	4.0-16	0-35
SteA:					
Starks----------	0-11	5.1-7.3	1.0-3.0	6.0-18	0
	11-36	4.5-6.5	0.5-1.0	10-23	0
	36-49	5.1-7.8	0.5-1.0	8.0-20	0-20
	49-60	5.1-8.4	0.0-0.5	6.0-19	0-40
SvqE:					
Strawn----------	0-3	5.6-7.3	1.0-3.0	9.0-22	0
	3-9	5.6-7.3	1.0-3.0	9.0-22	0
	9-16	5.6-7.8	0.5-2.0	11-25	0-30
	16-60	7.4-8.4	0.5-1.0	7.0-17	15-40
SvqG:					
Strawn----------	0-6	5.6-7.3	1.0-3.0	9.0-22	0
	6-18	5.6-7.8	0.5-2.0	11-25	0-30
	18-60	7.4-8.4	0.5-1.0	7.0-17	15-40
SwdE:					
Strawn----------	0-3	5.6-7.3	1.0-3.0	9.0-22	0
	3-9	5.6-7.3	1.0-3.0	9.0-22	0
	9-16	5.6-7.8	0.5-2.0	11-25	0-30
	16-60	7.4-8.4	0.5-1.0	7.0-17	15-40
Rodman----------	0-10	6.6-7.8	2.0-6.0	7.0-27	0-15
	10-18	6.6-7.8	0.5-2.0	3.0-19	0-30
	18-80	7.4-8.4	0.0-0.5	0.0-7.0	20-55
SwdG:					
Strawn----------	0-6	5.6-7.3	1.0-3.0	9.0-22	0
	6-18	5.6-7.8	0.5-2.0	11-25	0-30
	18-60	7.4-8.4	0.5-1.0	7.0-17	15-40
Rodman----------	0-10	6.6-7.8	2.0-6.0	7.0-27	0-15
	10-18	6.6-7.8	0.5-2.0	3.0-19	0-30
	18-80	7.4-8.4	0.0-0.5	0.0-7.0	20-55

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
TfdA:					
Throckmorton----	0-9	5.1-7.3	2.0-4.0	6.0-18	0
	9-34	4.5-6.5	0.5-1.0	9.0-22	0
	34-45	4.5-6.0	0.5-1.0	8.0-20	0
	45-58	6.1-7.3	0.5-1.0	7.0-17	0-25
	58-65	7.4-8.4	0.5-1.0	5.0-14	15-40
TfdB:					
Throckmorton----	0-10	5.1-7.3	2.0-4.0	6.0-18	0
	10-32	4.5-6.5	0.5-1.0	9.0-22	0
	32-50	4.5-6.0	0.5-1.0	8.0-20	0
	50-58	6.1-7.3	0.5-1.0	7.0-17	0-25
	58-80	7.4-8.4	0.5-1.0	5.0-14	15-40
ThrA:					
Treaty----------	0-14	5.6-7.3	2.0-5.0	15-31	0
	14-36	6.1-7.8	1.0-2.0	13-25	0-10
	36-59	6.6-8.4	0.5-1.0	9.0-23	0-25
	59-70	7.4-8.4	0.1-0.5	5.0-12	15-40
TlxA:					
Toronto---------	0-9	5.1-7.3	2.0-4.0	11-25	0
	9-12	5.1-5.8	0.5-2.0	10-20	0
	12-32	4.5-7.3	0.5-2.0	10-20	0
	32-53	5.6-8.4	0.5-1.0	9.0-23	0-25
	53-60	7.4-8.4	0.5-1.0	4.0-14	15-40
TmcA:					
Totanang--------	0-12	5.6-7.3	2.0-4.0	14-26	0
	12-34	5.6-7.3	1.0-2.0	12-25	0
	34-62	5.6-7.8	0.5-1.0	5.0-17	0-20
	62-80	6.6-8.4	0.5-1.0	2.0-8.0	0-55
UbyE:					
Udorthents.					
Uea:					
Urban land.					
WkmA:					
Waupecan--------	0-11	6.1-7.8	3.0-5.0	10-22	0
	11-35	5.6-7.3	0.5-1.0	11-23	0
	35-72	5.6-7.3	0.5-1.0	5.0-17	0
	72-80	7.4-8.4	0.0-0.5	1.0-7.0	25-55
WkmB2:					
Waupecan--------	0-11	6.1-7.8	3.0-5.0	10-22	0
	11-35	5.6-7.3	0.5-1.0	11-23	0
	35-72	5.6-7.3	0.5-1.0	5.0-17	0
	72-80	7.4-8.4	0.0-0.5	1.0-7.0	25-55
WmnA:					
Waynetown-------	0-14	5.1-7.3	1.0-3.0	6.0-18	0
	14-32	5.6-6.5	0.5-1.0	12-22	0
	32-45	5.6-6.5	0.5-1.0	9.0-18	0
	45-70	6.1-7.3	0.0-0.5	8.0-19	0-30
	70-75	7.4-8.4	0.0-0.5	0.0-4.0	25-55

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
WmpA:					
Wea-------------	0-10	5.6-7.3	2.0-5.0	8.0-24	0
	10-20	5.1-6.5	0.5-1.0	9.0-21	0
	20-44	5.6-7.3	0.5-1.0	8.0-20	0-10
	44-54	6.6-7.8	0.0-0.5	3.0-7.0	0-35
	54-80	7.4-8.4	0.0-0.5	0.0-4.0	25-55
WmpB2:					
Wea-------------	0-8	5.6-7.3	2.0-5.0	8.0-24	0
	8-16	5.1-6.5	0.5-1.0	9.0-21	0
	16-44	5.6-7.3	0.5-1.0	8.0-20	0-10
	44-54	6.6-7.8	0.0-0.5	3.0-7.0	0-35
	54-80	7.4-8.4	0.0-0.5	0.0-4.0	25-55
WqvA:					
Westland--------	0-10	6.1-7.3	3.0-6.0	15-25	0
	10-21	6.1-7.3	0.5-2.0	10-15	0
	21-47	6.6-7.8	0.5-2.0	5.0-15	0-20
	47-60	7.4-8.4	0.0-0.5	0.0-0.5	25-55
WsuA:					
Whitaker--------	0-9	5.6-7.3	1.0-3.0	5.0-17	0
	9-17	5.6-7.3	1.0-3.0	5.0-17	0
	17-39	5.1-7.8	0.5-1.0	8.0-22	0-20
	39-48	5.1-7.8	0.5-1.0	8.0-22	0-20
	48-60	6.1-8.4	0.0-0.5	2.0-13	0-45
WtaA:					
Whitaker--------	0-12	5.6-7.3	1.0-3.0	5.0-17	0
	12-47	5.1-7.8	1.0-3.0	9.0-26	0-20
	47-80	6.1-8.4	0.0-0.5	2.0-13	0-45
WufB2:					
Williamstown----	0-9	5.1-7.3	1.0-3.0	10-20	0
	9-33	5.1-7.3	0.5-1.0	15-25	0
	33-37	6.6-8.4	0.0-0.5	10-20	0-10
	37-80	7.4-8.4	0.0-0.5	5.0-15	20-45
WvaA:					
Wingate---------	0-9	5.6-7.3	2.0-4.0	13-24	0
	9-12	5.6-7.3	0.5-2.0	10-20	0
	12-27	5.1-7.3	0.5-1.0	15-23	0
	27-52	5.1-7.8	0.0-0.5	12-19	0-5
	52-60	7.4-8.4	0.0-0.5	9.0-17	15-40
WvaB2:					
Wingate---------	0-9	5.6-7.3	2.0-4.0	13-24	0
	9-38	5.1-7.3	0.5-1.0	15-23	0
	38-70	5.1-7.8	0.0-0.5	12-19	0-5
	70-80	7.4-8.4	0.0-0.5	9.0-17	15-40
XabA:					
Xenia-----------	0-10	5.6-7.3	1.0-3.0	6.0-18	0
	10-30	5.1-7.3	0.5-1.0	12-23	0
	30-50	5.6-7.3	0.5-1.0	11-23	0
	50-58	6.6-8.4	0.0-0.5	6.0-17	0-20
	58-80	7.4-8.4	0.0-0.5	5.0-12	15-40

Table 17.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate equivalent
	In	*pH*	*Pct*	*meq/100 g*	*Pct*
XabB2:					
Xenia-----------	0-8	5.6-7.3	1.0-3.0	6.0-18	0
	8-30	5.1-7.3	0.5-1.0	12-23	0
	30-50	5.6-7.3	0.5-1.0	11-23	0
	50-58	6.6-8.4	0.0-0.5	6.0-17	0-20
	58-80	7.4-8.4	0.0-0.5	5.0-12	15-40
XfuB2:					
Miami-----------	0-8	5.6-7.3	1.0-2.0	6.0-17	0
	8-13	5.1-7.3	0.5-1.0	16-25	0
	13-31	5.1-7.3	0.0-0.5	9.0-20	0
	31-36	6.6-7.8	0.0-0.5	4.0-11	0-20
	36-80	7.4-8.4	0.0-0.5	2.0-9.0	20-45
Rainsville------	0-8	5.6-7.3	1.0-3.0	7.0-21	0
	8-13	5.6-7.3	0.5-1.0	11-20	0
	13-30	4.5-6.0	0.5-1.0	13-22	0
	30-42	4.5-6.0	0.5-1.0	13-22	0
	42-48	6.6-7.8	0.5-1.0	8.0-17	0-25
	48-60	7.4-8.4	0.0-0.5	6.0-14	15-40
XfuC2:					
Miami-----------	0-7	5.6-7.3	1.0-2.0	6.0-17	0
	7-13	5.1-7.3	0.5-1.0	16-25	0
	13-31	5.1-7.3	0.0-0.5	9.0-20	0
	31-36	6.6-7.8	0.0-0.5	4.0-11	0-20
	36-80	7.4-8.4	0.0-0.5	2.0-9.0	20-45
Rainsville------	0-6	5.6-7.3	1.0-3.0	7.0-21	0
	6-13	5.6-7.3	0.5-1.0	11-20	0
	13-30	4.5-6.0	0.5-1.0	13-22	0
	30-42	4.5-6.0	0.5-1.0	13-22	0
	42-48	6.6-7.8	0.5-1.0	8.0-17	0-25
	48-60	7.4-8.4	0.0-0.5	6.0-14	15-40
YedA:					
Yeddo-----------	0-8	5.6-7.3	1.0-3.0	6.0-18	0
	8-9	5.1-6.5	0.5-1.0	12-23	0-20
	9-34	4.5-7.8	0.0-0.5	8.0-16	0-20
	34-45	4.5-7.8	0.0-0.5	3.0-13	0-20
	45-76	7.4-8.4	0.0-0.5	3.0-13	5-35
	76-80	7.4-8.4	0.0-0.5	3.0-13	5-35

Table 18.--Water Features

("Water table," "flooding," and such terms as "perched," "apparent," "occasional," and "brief" are explained in the text. Estimates of the frequency of flooding apply to the whole year rather than to indivudual months. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

			High water table			Ponding		Flooding	
Map symbol and soil name	Hydro-logic group	Months	Upper limit	Lower limit	Kind of water table	Maximum ponding depth	Ponding duration	Frequency	Duration
			Ft	*Ft*		*Ft*			
AbfA:									
Adeland---------	C	December	0.5-3.0	1.5-3.5	Perched	---	---	---	---
		January	0.5-2.0	1.5-3.5	Perched	---	---	---	---
		February	0.5-2.0	1.5-3.5	Perched	---	---	---	---
		March	0.5-2.0	1.5-3.5	Perched	---	---	---	---
		April	0.5-3.0	1.5-3.5	Perched	---	---	---	---
		May	1.5-3.5	1.5-3.5	Perched	---	---	---	---
		June	1.5-3.5	1.5-3.5	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	1.5-3.5	Perched	---	---	---	---
		November	1.5-3.5	1.5-3.5	Perched	---	---	---	---
AbhAI:									
Adrian----------	D	December	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long.
		January	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long.
		February	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long.
		March	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long.
		April	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long.
		May	0.0-0.5	>6.0	Apparent	0.0-1.0	Long	Frequent	Long.
		June	0.5-1.0	>6.0	Apparent	---	---	Frequent	Long.
		July	0.5-1.5	>6.0	Apparent	---	---	Rare	---
		August	0.5-1.5	>6.0	Apparent	---	---	Rare	---
		September	0.5-1.5	>6.0	Apparent	---	---	Rare	---
		October	0.5-1.5	>6.0	Apparent	---	---	Frequent	Long.
		November	0.5-1.0	>6.0	Apparent	0.0-1.0	Long	Frequent	Long.
AjaAI:									
Allison---------	B	December	2.5-4.0	>6.0	Apparent	---	---	Occasional	Long.
		January	2.5-3.5	>6.0	Apparent	---	---	Occasional	Long.
		February	2.5-3.5	>6.0	Apparent	---	---	Frequent	Long.
		March	3.0-4.0	>6.0	Apparent	---	---	Frequent	Long.
		April	3.5-4.5	>6.0	Apparent	---	---	Frequent	Long.
		May	4.5-5.5	>6.0	Apparent	---	---	Occasional	Long.
		June	>6.0	>6.0	---	---	---	Occasional	Long.
		July	>6.0	>6.0	---	---	---	Occasional	Long.
		August	>6.0	>6.0	---	---	---	Rare	---
		September	>6.0	>6.0	---	---	---	Rare	---
		October	4.5-5.5	>6.0	Apparent	---	---	Rare	---
		November	3.5-4.5	>6.0	Apparent	---	---	Occasional	Long.
ApkA:									
Angatoka--------	B	All months	>6.0	>6.0	---	---	---	---	---
AplA, AplB2, AplC2:									
Angatoka-------	B	All months	>6.0	>6.0	---	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table			Ponding		Flooding	
			Upper limit	Lower limit	Kind of water table	Maximum ponding depth	Ponding duration	Frequency	Duration
			Ft	Ft		Ft			
AzqA:									
Ayrshire--------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
BcgAI:									
Battleground----	B	December	>6.0	>6.0	---	---	---	Occasional	Long.
		January	>6.0	>6.0	---	---	---	Occasional	Long.
		February	>6.0	>6.0	---	---	---	Frequent	Long.
		March	>6.0	>6.0	---	---	---	Frequent	Long.
		April	>6.0	>6.0	---	---	---	Frequent	Long.
		May	>6.0	>6.0	---	---	---	Occasional	Long.
		June	>6.0	>6.0	---	---	---	Occasional	Long.
		July	>6.0	>6.0	---	---	---	Occasional	Long.
		August	>6.0	>6.0	---	---	---	Rare	---
		September	>6.0	>6.0	---	---	---	Rare	---
		October	>6.0	>6.0	---	---	---	Rare	---
		November	>6.0	>6.0	---	---	---	Occasional	Long.
BhyA, BhyB2:									
Birkbeck--------	B	December	2.0-3.5	3.5-6.0	Perched	---	---	---	---
		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	---	---	---	---
		May	3.5-4.5	3.5-6.0	Perched	---	---	---	---
		June	3.5-4.5	3.5-6.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	3.5-4.5	3.5-6.0	Perched	---	---	---	---
		November	3.5-4.5	3.5-6.0	Perched	---	---	---	---
BvlAK:									
Brouillett------	B	December	0.5-3.0	>6.0	Apparent	---	---	Occasional	Brief.
		January	0.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		February	0.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		March	0.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		April	0.5-3.0	>6.0	Apparent	---	---	Occasional	Brief.
		May	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		June	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		July	>6.0	>6.0	---	---	---	Occasional	Brief.
		August	>6.0	>6.0	---	---	---	Occasional	Brief.
		September	>6.0	>6.0	---	---	---	Rare	---
		October	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		November	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.
CbaA, CbaB2:									
Camden----------	B	All months	>6.0	>6.0	---	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	*Ft*		*Ft*			
CfrG:									
Cates-----------	C	All months	>6.0	>6.0	---	---	---	---	---
ChqA:									
Chalmers--------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---
CnaB, CnaC:									
Coloma----------	A	All months	>6.0	>6.0	---	---	---	---	---
CsuA:									
Crane-----------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
CudA:									
Crosby----------	C	December	0.5-3.0	2.0-3.5	Perched	---	---	---	---
		January	0.5-2.0	2.0-3.5	Perched	---	---	---	---
		February	0.5-2.0	2.0-3.5	Perched	---	---	---	---
		March	0.5-2.0	2.0-3.5	Perched	---	---	---	---
		April	0.5-3.0	2.0-3.5	Perched	---	---	---	---
		May	1.5-3.5	2.0-3.5	Perched	---	---	---	---
		June	1.5-3.5	2.0-3.5	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	2.0-3.5	Perched	---	---	---	---
		November	1.5-3.5	2.0-3.5	Perched	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
DpbA:									
Drummer---------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---
EcoA:									
Edwardsville----	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
EdeAK:									
Eel-------------	B	December	1.5-2.5	>6.0	Apparent	---	---	Occasional	Brief.
		January	1.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		February	1.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		March	1.5-2.5	>6.0	Apparent	---	---	Occasional	Brief.
		April	2.0-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		May	3.5-5.5	>6.0	Apparent	---	---	Occasional	Brief.
		June	>6.0	>6.0	---	---	---	Occasional	Brief.
		July	>6.0	>6.0	---	---	---	Occasional	Brief.
		August	>6.0	>6.0	---	---	---	Occasional	Brief.
		September	>6.0	>6.0	---	---	---	Rare	---
		October	3.5-5.5	>6.0	Apparent	---	---	Occasional	Brief.
		November	2.0-3.5	>6.0	Apparent	---	---	Occasional	Brief.
Beckville-------	B	December	1.5-2.5	>6.0	Apparent	---	---	Occasional	Brief.
		January	1.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		February	1.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		March	1.5-2.5	>6.0	Apparent	---	---	Occasional	Brief.
		April	2.0-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		May	3.5-5.5	>6.0	Apparent	---	---	Occasional	Brief.
		June	>6.0	>6.0	---	---	---	Occasional	Brief.
		July	>6.0	>6.0	---	---	---	Occasional	Brief.
		August	>6.0	>6.0	---	---	---	Occasional	Brief.
		September	>6.0	>6.0	---	---	---	Rare	---
		October	3.5-5.5	>6.0	Apparent	---	---	Occasional	Brief.
		November	2.0-3.5	>6.0	Apparent	---	---	Occasional	Brief.
EmdA, EmdB:									
Elston----------	B	All months	>6.0	>6.0	---	---	---	---	---
FamB:									
Fairpoint-------	C	All months	>6.0	>6.0	---	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	*Ft*		*Ft*			
FdbA, FdbB:									
Fincastle-------	C	December	0.5-3.0	3.5-5.0	Perched	---	---	---	---
		January	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		February	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		March	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		April	0.5-3.0	3.5-5.0	Perched	---	---	---	---
		May	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		June	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		November	1.5-3.5	4.5-5.0	Perched	---	---	---	---
FdnA:									
Fincastle-------	C	December	0.5-3.0	3.5-5.0	Perched	---	---	---	---
		January	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		February	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		March	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		April	0.5-3.0	3.5-5.0	Perched	---	---	---	---
		May	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		June	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		November	1.5-3.5	4.5-5.0	Perched	---	---	---	---
Starks----------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
GcaAK:									
Genesee---------	B	December	>6.0	>6.0	---	---	---	Occasional	Brief.
		January	>6.0	>6.0	---	---	---	Occasional	Brief.
		February	>6.0	>6.0	---	---	---	Occasional	Brief.
		March	>6.0	>6.0	---	---	---	Occasional	Brief.
		April	>6.0	>6.0	---	---	---	Occasional	Brief.
		May	>6.0	>6.0	---	---	---	Occasional	Brief.
		June	>6.0	>6.0	---	---	---	Occasional	Brief.
		July	>6.0	>6.0	---	---	---	Occasional	Brief.
		August	>6.0	>6.0	---	---	---	Occasional	Brief.
		September	>6.0	>6.0	---	---	---	Rare	---
		October	>6.0	>6.0	---	---	---	Occasional	Brief.
		November	>6.0	>6.0	---	---	---	Occasional	Brief.
JcfG:									
Judyville-------	C	All months	>6.0	>6.0	---	---	---	---	---
KnqD2:									
Kendallville----	C	All months	>6.0	>6.0	---	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
LbrA:									
Lafayette-------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	0.5-3.0	>6.0	Apparent	---	---	---	---
		November	0.5-3.5	>6.0	Apparent	---	---	---	---
LdxAK:									
Landes----------	B	December	>6.0	>6.0	---	---	---	Occasional	Brief.
		January	>6.0	>6.0	---	---	---	Occasional	Brief.
		February	>6.0	>6.0	---	---	---	Occasional	Brief.
		March	>6.0	>6.0	---	---	---	Occasional	Brief.
		April	>6.0	>6.0	---	---	---	Occasional	Brief.
		May	>6.0	>6.0	---	---	---	Occasional	Brief.
		June	>6.0	>6.0	---	---	---	Occasional	Brief.
		July	>6.0	>6.0	---	---	---	Occasional	Brief.
		August	>6.0	>6.0	---	---	---	Occasional	Brief.
		September	>6.0	>6.0	---	---	---	Rare	---
		October	>6.0	>6.0	---	---	---	Occasional	Brief.
		November	>6.0	>6.0	---	---	---	Occasional	Brief.
LfuAI:									
Lash------------	B	December	>6.0	>6.0	---	---	---	Occasional	Long.
		January	>6.0	>6.0	---	---	---	Occasional	Long.
		February	>6.0	>6.0	---	---	---	Frequent	Long.
		March	>6.0	>6.0	---	---	---	Frequent	Long.
		April	>6.0	>6.0	---	---	---	Frequent	Long.
		May	>6.0	>6.0	---	---	---	Occasional	Long.
		June	>6.0	>6.0	---	---	---	Occasional	Long.
		July	>6.0	>6.0	---	---	---	Occasional	Long.
		August	>6.0	>6.0	---	---	---	Rare	---
		September	>6.0	>6.0	---	---	---	Rare	---
		October	>6.0	>6.0	---	---	---	Rare	---
		November	>6.0	>6.0	---	---	---	Occasional	Long.
LfzB2:									
Lauramie--------	B	All months	>6.0	>6.0	---	---	---	---	---
LugA, LugB2, LugC2:									
Loudonville----	C	All months	>6.0	>6.0	---	---	---	---	---
LuhC:									
Loudonville-----	C	All months	>6.0	>6.0	---	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	*Ft*		*Ft*			
MamA:									
Mahalasville----	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---
MaoA:									
Mahalaland------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---
MapA:									
Mahalasville, bedrock substratum----	B	December	0.0-0.5	3.5-5.0	Perched	0.0-0.5	Long	---	---
		January	0.0-0.5	3.5-5.0	Perched	0.0-0.5	Long	---	---
		February	0.0-0.5	3.5-5.0	Perched	0.0-0.5	Long	---	---
		March	0.0-0.5	3.5-5.0	Perched	0.0-0.5	Long	---	---
		April	0.5-1.0	3.5-5.0	Perched	0.0-0.5	Brief	---	---
		May	2.0-3.0	3.5-5.0	Perched	0.0-0.5	Brief	---	---
		June	4.0-5.0	3.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	3.5-5.0	Perched	---	---	---	---
		November	2.0-3.0	3.5-5.0	Perched	---	---	---	---
MecB2:									
Martinsville----	B	All months	>6.0	>6.0	---	---	---	---	---
MjuA:									
Mellott---------	B	All months	>6.0	>6.0	---	---	---	---	---
MqlG:									
Minnehaha-------	B	All months	>6.0	>6.0	---	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table			Ponding		Flooding	
			Upper limit	Lower limit	Kind of water table	Maximum ponding depth	Ponding duration	Frequency	Duration
			Ft	*Ft*		*Ft*			
MrcA:									
Mitiwanga-------	C	December	0.5-3.0	1.5-3.5	Perched	---	---	---	---
		January	0.5-2.0	1.5-3.5	Perched	---	---	---	---
		February	0.5-2.0	1.5-3.5	Perched	---	---	---	---
		March	0.5-2.0	1.5-3.5	Perched	---	---	---	---
		April	0.5-3.0	1.5-3.5	Perched	---	---	---	---
		May	1.5-3.5	1.5-3.5	Perched	---	---	---	---
		June	1.5-3.5	1.5-3.5	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	1.5-3.5	Perched	---	---	---	---
		November	1.5-3.5	1.5-3.5	Perched	---	---	---	---
ObmB2, ObmC2:									
Octagon---------	C	December	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		January	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		February	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		March	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		April	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		May	2.5-3.0	2.5-3.5	Perched	---	---	---	---
		June	2.5-3.0	2.5-3.5	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	2.5-3.0	2.5-3.5	Perched	---	---	---	---
		November	2.5-3.0	2.5-3.5	Perched	---	---	---	---
ObxA, ObxB2, ObxC2, ObxD2:									
Ockley---------	B	All months	>6.0	>6.0	---	---	---	---	---
Pg:									
Pits, gravel.									
PgaA:									
Pella-----------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	3.0-4.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		July	4.0-5.0	>6.0	Apparent	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		November	3.0-4.0	>6.0	Apparent	0.0-0.5	Brief	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
PnwBQ:									
Pinevillage-----	B	December	>6.0	>6.0	---	---	---	---	---
		January	>6.0	>6.0	---	---	---	Rare	---
		February	>6.0	>6.0	---	---	---	Rare	---
		March	>6.0	>6.0	---	---	---	Rare	---
		April	>6.0	>6.0	---	---	---	Rare	---
		May	>6.0	>6.0	---	---	---	Rare	---
		June	>6.0	>6.0	---	---	---	Rare	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	>6.0	>6.0	---	---	---	---	---
		November	>6.0	>6.0	---	---	---	---	---
PvsA, PvsB2, PvsC2:									
Princeton------	B	All months	>6.0	>6.0	---	---	---	---	---
RbfA:									
Ragsdale--------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---
RbuB2, RbuC2:									
Rainsville------	B	December	2.0-3.5	4.0-5.0	Perched	---	---	---	---
		January	2.0-3.5	4.0-5.0	Perched	---	---	---	---
		February	2.0-3.5	4.0-5.0	Perched	---	---	---	---
		March	2.0-3.5	4.0-5.0	Perched	---	---	---	---
		April	2.0-3.5	4.0-5.0	Perched	---	---	---	---
		May	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		June	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		November	3.5-4.5	3.5-5.0	Perched	---	---	---	---
RdvA:									
Raub------------	C	December	0.5-3.0	3.5-6.0	Perched	---	---	---	---
		January	0.5-2.0	3.5-6.0	Perched	---	---	---	---
		February	0.5-2.0	3.5-6.0	Perched	---	---	---	---
		March	0.5-2.0	3.5-6.0	Perched	---	---	---	---
		April	0.5-3.0	3.5-6.0	Perched	---	---	---	---
		May	1.5-3.5	4.5-6.0	Perched	---	---	---	---
		June	1.5-3.5	5.0-6.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	4.5-6.0	Perched	---	---	---	---
		November	1.5-3.5	3.5-6.0	Perched	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
RetA:									
Rensselaer------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---
RosAK:									
Rockmill--------	C	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Occasional	Brief.
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Occasional	Brief.
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Occasional	Brief.
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Occasional	Brief.
		April	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Occasional	Brief.
		May	0.5-1.0	>6.0	Apparent	0.0-0.5	Long	Occasional	Brief.
		June	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief.
		July	1.0-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		August	1.0-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		September	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	Rare	---
		October	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	Brief.
		November	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	Occasional	Brief.
RqaE, RqaG:									
Rodman----------	A	All months	>6.0	>6.0	---	---	---	---	---
RtxAK:									
Rossburg--------	B	December	>6.0	>6.0	---	---	---	Occasional	Brief.
		January	>6.0	>6.0	---	---	---	Occasional	Brief.
		February	>6.0	>6.0	---	---	---	Occasional	Brief.
		March	>6.0	>6.0	---	---	---	Occasional	Brief.
		April	>6.0	>6.0	---	---	---	Occasional	Brief.
		May	>6.0	>6.0	---	---	---	Occasional	Brief.
		June	>6.0	>6.0	---	---	---	Occasional	Brief.
		July	>6.0	>6.0	---	---	---	Occasional	Brief.
		August	>6.0	>6.0	---	---	---	Occasional	Brief.
		September	>6.0	>6.0	---	---	---	Rare	---
		October	>6.0	>6.0	---	---	---	Occasional	Brief.
		November	>6.0	>6.0	---	---	---	Occasional	Brief.
RuxA:									
Raub------------	C	December	0.5-3.0	3.5-6.0	Perched	---	---	---	---
		January	0.5-2.0	3.5-6.0	Perched	---	---	---	---
		February	0.5-2.0	3.5-6.0	Perched	---	---	---	---
		March	0.5-2.0	3.5-6.0	Perched	---	---	---	---
		April	0.5-3.0	3.5-6.0	Perched	---	---	---	---
		May	1.5-3.5	4.5-6.0	Perched	---	---	---	---
		June	1.5-3.5	5.0-6.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	4.5-6.0	Perched	---	---	---	---
		November	1.5-3.5	3.5-6.0	Perched	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	*Ft*		*Ft*			
RuxA:									
Brenton----------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
RyfA, RyfB2:									
Rush------------	B	All months	>6.0	>6.0	---	---	---	---	---
RywB2, RywC2, RywD2:									
Russell---------	B	December	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		January	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		February	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		March	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		April	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		May	>6.0	>6.0	---	---	---	---	---
		June	>6.0	>6.0	---	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	>6.0	>6.0	---	---	---	---	---
		November	4.0-6.0	4.5-6.0	Perched	---	---	---	---
RzcE:									
Russell----------	B	December	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		January	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		February	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		March	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		April	3.5-6.0	4.5-6.0	Perched	---	---	---	---
		May	>6.0	>6.0	---	---	---	---	---
		June	>6.0	>6.0	---	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	>6.0	>6.0	---	---	---	---	---
		November	4.0-6.0	4.5-6.0	Perched	---	---	---	---
Strawn-----------	B	All months	>6.0	>6.0	---	---	---	---	---
SldAK:									
Shoals-----------	B	December	0.5-3.0	>6.0	Apparent	---	---	Occasional	Brief.
		January	0.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		February	0.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		March	0.5-2.0	>6.0	Apparent	---	---	Occasional	Brief.
		April	0.5-3.0	>6.0	Apparent	---	---	Occasional	Brief.
		May	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		June	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		July	>6.0	>6.0	---	---	---	Occasional	Brief.
		August	>6.0	>6.0	---	---	---	Occasional	Brief.
		September	>6.0	>6.0	---	---	---	Rare	---
		October	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.
		November	1.5-3.5	>6.0	Apparent	---	---	Occasional	Brief.

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
SlyA, SlyB2:									
Silverwood------	B	All months	>6.0	>6.0	---	---	---	---	---
SlzA, SlzB2, SlzC2, SlzD2:									
Silverwood-----	B	All months	>6.0	>6.0	---	---	---	---	---
SngA:									
Sleeth----------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
SnlAP:									
Southwest-------	C	December	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Brief	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Brief	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Brief	---	---
		April	0.0-0.5	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	1.0-3.5	>6.0	Apparent	---	---	---	---
		July	3.5-5.0	>6.0	Apparent	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	3.5-5.0	>6.0	Apparent	---	---	---	---
		November	1.0-3.5	>6.0	Apparent	---	---	---	---
SobAI:									
Sloan-----------	B	December	0.0-0.5	>6.0	Apparent	---	---	Occasional	Long.
		January	0.0-0.5	>6.0	Apparent	---	---	Occasional	Long.
		February	0.0-0.5	>6.0	Apparent	---	---	Frequent	Long.
		March	0.0-0.5	>6.0	Apparent	---	---	Frequent	Long.
		April	0.0-0.5	>6.0	Apparent	---	---	Frequent	Long.
		May	0.5-1.0	>6.0	Apparent	---	---	Occasional	Long.
		June	1.0-1.5	>6.0	Apparent	---	---	Occasional	Long.
		July	1.5-2.5	>6.0	Apparent	---	---	Occasional	Long.
		August	1.5-2.5	>6.0	Apparent	---	---	Rare	---
		September	1.5-2.5	>6.0	Apparent	---	---	Rare	---
		October	1.0-1.5	>6.0	Apparent	---	---	Rare	---
		November	0.0-0.5	>6.0	Apparent	---	---	Occasional	Long.
Beaucoup--------	B	December	0.0-0.5	>6.0	Apparent	---	---	Occasional	Long.
		January	0.0-0.5	>6.0	Apparent	---	---	Occasional	Long.
		February	0.0-0.5	>6.0	Apparent	---	---	Frequent	Long.
		March	0.0-0.5	>6.0	Apparent	---	---	Frequent	Long.
		April	0.0-0.5	>6.0	Apparent	---	---	Frequent	Long.
		May	0.5-1.0	>6.0	Apparent	---	---	Occasional	Long.
		June	1.0-1.5	>6.0	Apparent	---	---	Occasional	Long.
		July	1.5-2.5	>6.0	Apparent	---	---	Occasional	Long.
		August	1.5-2.5	>6.0	Apparent	---	---	Rare	---
		September	1.5-2.5	>6.0	Apparent	---	---	Rare	---
		October	1.0-1.5	>6.0	Apparent	---	---	Rare	---
		November	0.0-0.5	>6.0	Apparent	---	---	Occasional	Long.

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
SseB2:									
St. Charles-----	B	All months	>6.0	>6.0	---	---	---	---	---
SteA:									
Starks----------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
SvqE, SvqG:									
Strawn----------	B	All months	>6.0	>6.0	---	---	---	---	---
SwdE, SwdG:									
Strawn----------	B	All months	>6.0	>6.0	---	---	---	---	---
Rodman----------	A	All months	>6.0	>6.0	---	---	---	---	---
TfdA, TfdB:									
Throckmorton----	B	December	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		January	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		February	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		March	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		April	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		May	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		June	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		November	3.5-4.5	3.5-5.0	Perched	---	---	---	---
ThrA:									
Treaty----------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	*Ft*		*Ft*			
TlxA:									
Toronto---------	C	December	0.5-3.0	3.5-5.0	Perched	---	---	---	---
		January	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		February	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		March	0.5-2.0	3.5-5.0	Perched	---	---	---	---
		April	0.5-3.0	3.5-5.0	Perched	---	---	---	---
		May	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		June	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	4.5-5.0	Perched	---	---	---	---
		November	1.5-3.5	4.5-5.0	Perched	---	---	---	---
TmcA:									
Totanang--------	B	December	2.5-4.0	>6.0	Apparent	---	---	---	---
		January	2.5-3.5	>6.0	Apparent	---	---	---	---
		February	2.5-3.5	>6.0	Apparent	---	---	---	---
		March	3.0-4.0	>6.0	Apparent	---	---	---	---
		April	3.5-4.5	>6.0	Apparent	---	---	---	---
		May	4.5-5.5	>6.0	Apparent	---	---	---	---
		June	>6.0	>6.0	---	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.5-5.5	>6.0	Apparent	---	---	---	---
		November	3.5-4.5	>6.0	Apparent	---	---	---	---
UbyE:									
Udorthents.									
Uea:									
Urban land.									
WkmA, WkmB2:									
Waupecan--------	B	All months	>6.0	>6.0	---	---	---	---	---
WmnA:									
Waynetown-------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
WmpA, WmpB2:									
Wea-------------	B	All months	>6.0	>6.0	---	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
WqvA:									
Westland--------	B	December	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		January	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		February	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		March	0.0-0.5	>6.0	Apparent	0.0-0.5	Long	---	---
		April	0.5-1.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		May	2.0-3.0	>6.0	Apparent	0.0-0.5	Brief	---	---
		June	4.0-5.0	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	4.0-5.0	>6.0	Apparent	---	---	---	---
		November	2.0-3.0	>6.0	Apparent	---	---	---	---
WsuA:									
Whitaker--------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
WtaA:									
Whitaker--------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---
WufB2:									
Williamstown----	C	December	1.5-2.5	2.0-3.5	Perched	---	---	---	---
		January	1.5-2.5	2.0-3.5	Perched	---	---	---	---
		February	1.5-2.5	2.0-3.5	Perched	---	---	---	---
		March	1.5-2.5	2.0-3.5	Perched	---	---	---	---
		April	1.5-2.5	2.0-3.5	Perched	---	---	---	---
		May	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		June	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		November	2.0-3.5	3.5-5.0	Perched	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	Ft		Ft			
WvaA, WvaB2:									
Wingate---------	B	December	2.0-3.0	3.5-5.0	Perched	---	---	---	---
		January	2.0-3.0	3.5-5.0	Perched	---	---	---	---
		February	2.0-3.0	3.5-5.0	Perched	---	---	---	---
		March	2.0-3.0	3.5-5.0	Perched	---	---	---	---
		April	2.0-3.0	3.5-5.0	Perched	---	---	---	---
		May	2.5-3.0	3.5-5.0	Perched	---	---	---	---
		June	2.5-3.0	3.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	2.5-3.0	3.5-5.0	Perched	---	---	---	---
		November	2.5-3.0	3.5-5.0	Perched	---	---	---	---
XabA, XabB2:									
Xenia-----------	B	December	1.5-2.5	3.5-5.0	Perched	---	---	---	---
		January	1.5-2.5	3.5-5.0	Perched	---	---	---	---
		February	1.5-2.5	3.5-5.0	Perched	---	---	---	---
		March	1.5-2.5	3.5-5.0	Perched	---	---	---	---
		April	1.5-2.5	3.5-5.0	Perched	---	---	---	---
		May	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		June	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		November	2.0-3.5	3.5-5.0	Perched	---	---	---	---
XfuB2, XfuC2:									
Miami-----------	C	December	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		January	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		February	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		March	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		April	2.0-3.0	2.5-3.5	Perched	---	---	---	---
		May	2.5-3.0	2.5-3.5	Perched	---	---	---	---
		June	2.5-3.0	2.5-3.5	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	2.5-3.0	2.5-3.5	Perched	---	---	---	---
		November	2.5-3.0	2.5-3.5	Perched	---	---	---	---
Rainsville------	B	December	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		January	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		February	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		March	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		April	2.0-3.5	3.5-5.0	Perched	---	---	---	---
		May	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		June	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	3.5-4.5	3.5-5.0	Perched	---	---	---	---
		November	3.5-4.5	3.5-5.0	Perched	---	---	---	---

Table 18.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	High water table: Upper limit	High water table: Lower limit	High water table: Kind of water table	Ponding: Maximum ponding depth	Ponding: Ponding duration	Flooding: Frequency	Flooding: Duration
			Ft	*Ft*		*Ft*			
YedA:									
Yeddo-----------	B	December	0.5-3.0	>6.0	Apparent	---	---	---	---
		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	0.5-3.0	>6.0	Apparent	---	---	---	---
		May	1.5-3.5	>6.0	Apparent	---	---	---	---
		June	1.5-3.5	>6.0	Apparent	---	---	---	---
		July	>6.0	>6.0	---	---	---	---	---
		August	>6.0	>6.0	---	---	---	---	---
		September	>6.0	>6.0	---	---	---	---	---
		October	1.5-3.5	>6.0	Apparent	---	---	---	---
		November	1.5-3.5	>6.0	Apparent	---	---	---	---

Table 19.--Soil Features

(See text for definitions of terms used in this table. The symbol < means less than. Absence of an entry indicates that the feature is not a concern or that data was not estimated.)

Map symbol and soil name	Bedrock		Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Initial	Total		Uncoated steel	Concrete
		In	*In*	*In*			
AbfA:							
Adeland	Hard	20-40	---	---	High	High	Moderate.
AbhAI:							
Adrian	---	<80	4-12	29-33	High	High	Moderate.
AjaAI:							
Allison	---	<80	---	---	High	High	Low.
ApkA, AplA, AplB2, AplC2:							
Angatoka	---	<80	---	---	High	Moderate	Moderate.
AmkA:							
Ayrshire	---	<80	---	---	High	High	Moderate.
BcgAI:							
Battleground	---	<80	---	---	High	Low	Low.
BhyA, BhyB2:							
Birkbeck	---	<80	---	---	High	High	Moderate.
BvlAK:							
Brouillett	---	<80	---	---	Moderate	High	Low.
CbaA, CbaB2:							
Camden	---	<80	---	---	High	Low	Moderate.
CfrG:							
Cates	Hard	20-40	---	---	Moderate	High	High.
ChqA:							
Chalmers	---	<80	---	---	High	High	Low.
CnaB, CnaC:							
Coloma	---	<80	---	---	Low	Low	Moderate.
CsuA:							
Crane	---	<80	---	---	High	High	Low.
CudA:							
Crosby	---	<80	---	---	High	High	Low.
DpbA:							
Drummer	---	<80	---	---	High	High	Low.
EcoA:							
Edwardsville	---	<80	---	---	High	High	Low.
EdeAK:							
Eel	---	<80	---	---	High	Moderate	Low.
Beckville	---	<80	---	---	High	Low	Low.
EmdA, EmdB:							
Elston	---	<80	---	---	Low	Low	Moderate.

Table 19.--Soil Features

Map symbol and soil name	Bedrock		Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Initial	Total		Uncoated steel	Concrete
		In	*In*	*In*			
FamB:							
Fairpoint----------	---	<80		---	Moderate----	High--------	Low.
FdbA, FdbB:							
Fincastle----------	---	<80	---	---	High--------	High--------	Moderate.
FdnA:							
Starks-------------	---	<80	---	---	High--------	High--------	Moderate.
Fincastle----------	---	<80	---	---	High--------	High--------	Moderate.
GcaAK:							
Genesee------------	---	<80	---	---	Moderate----	Low---------	Low.
JcfG:							
Judyville----------	Hard------	20-40	---	---	Moderate----	Low---------	High.
KnqD2:							
Kendallville-------	---	<80	---	---	Moderate----	Moderate----	Moderate.
LbrA:							
Lafayette----------	---	<80	---	---	High--------	High--------	Moderate.
LdxAK:							
Landes-------------	---	<80	---	---	Moderate----	Low---------	Low.
LfuAI:							
Lash---------------	---	<80	---	---	Moderate----	Low---------	Low.
LfzB2:							
Lauramie-----------	---	<80	---	---	Moderate----	Moderate----	Moderate.
LugA, LugB2, LugC2, LuhC:							
Loudonville-------	Hard------	20-40	---	---	Moderate----	Moderate----	Moderate.
MamA:							
Mahalasville-------	---	<80	---	---	High--------	High--------	Low.
MaoA:							
Mahalaland---------	---	<80	---	---	High--------	High--------	Low.
MapA:							
Mahalasville, bedrock substratum	Hard------	40-60	---	---	High--------	High--------	Low.
MecB2:							
Martinsville-------	---	<80	---	---	Moderate----	Moderate----	Low.
MjuA:							
Mellott------------	---	<80	---	---	High--------	Moderate----	Moderate.
MqlG:							
Minnehaha----------	---	<80	---	---	High--------	Moderate----	Low.
MrcA:							
Mitiwanga----------	Hard------	20-40	---	---	High--------	High--------	Moderate.
ObmB2, ObmC2:							
Octagon------------	---	<80	---	---	Moderate----	High--------	Low.

Table 19.--Soil Features

Map symbol and soil name	Bedrock		Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Initial	Total		Uncoated steel	Concrete
		In	*In*	*In*			
ObxA, ObxB2, ObxC2, ObxD2:							
Ockley------------	---	<80	---	---	Moderate----	Moderate----	Moderate.
Pg:							
Pits, gravel.							
PgaA:							
Pella--------------	---	<80	---	---	High--------	High--------	Low.
PnwBQ:							
Pinevillage--------	---	<80	---	---	Moderate----	Low---------	Low.
PvsA, PvsB2, PvsC2:							
Princeton----------	---	<80	---	---	Moderate----	Moderate----	Moderate.
RbfA:							
Ragsdale-----------	---	<80	---	---	High--------	High--------	Low.
RbuB2, RbuC2:							
Rainsville---------	---	<80	---	---	Moderate----	Moderate----	Moderate.
RdvA:							
Raub---------------	---	<80	---	---	High--------	High--------	Moderate.
RetA:							
Rensselaer---------	---	<80	---	---	High--------	High--------	Low.
RosAK:							
Rockmill-----------	---	<80	---	---	High--------	Moderate----	Moderate.
RqaE, RqaG:							
Rodman-------------	---	<80	---	---	Low---------	Low---------	Low.
RtxAK:							
Rossburg-----------	---	<80	---	---	Moderate----	Low---------	Low.
RuxA:							
Raub---------------	---	<80	---	---	High--------	High--------	Moderate.
Brenton------------	---	<80	---	---	High--------	High--------	Low.
RyfA, RyfB2:							
Rush---------------	---	<80	---	---	High--------	Moderate----	Moderate.
RywB2, RywC2, RywD2:							
Russell------------	---	<80	---	---	High--------	Moderate----	Moderate.
RzcE:							
Russell------------	---	<80	---	---	High--------	Moderate----	Moderate.
Strawn-------------	---	<80	---	---	Moderate----	Low---------	Low.
SldAK:							
Shoals-------------	---	<80	---	---	High--------	High--------	Low.
SlyA, SlyB2, SlzA, SlzB2, SlzC2, SlzD2:							
Silverwood-------	---	<80	---	---	Moderate----	Moderate----	Low.

Table 19.--Soil Features

Map symbol and soil name	Bedrock		Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Initial	Total		Uncoated steel	Concrete
		In	*In*	*In*			
SngA:							
Sleeth	---	<80	---	---	High	High	Low.
SnlAP:							
Southwest	---	<80	---	---	High	High	Low.
SobAI:							
Sloan	---	<80		---	High	High	Low.
Beaucoup	---	<80	---	---	High	High	Low.
SseB2:							
St. Charles	---	<80	---	---	High	Moderate	Moderate.
SteA:							
Starks	---	<80	---	---	High	High	Moderate.
SvqE, SvqG:							
Strawn	---	<80	---	---	Moderate	Low	Low.
SwdE, SwdG:							
Strawn	---	<80	---	---	Moderate	Moderate	Low
Rodman	---	<80	---	---	Low	Low	Low.
TfdA, TfdB:							
Throckmorton	---	<80	---	---	High	Moderate	Moderate.
ThrA:							
Treaty	---	<80	---	---	High	High	Low.
TlxA:							
Toronto	---	<80	---	---	High	High	Low.
TmcA:							
Totanang	---	<80	---	---	High	Moderate	Low.
UbyE:							
Udorthents.							
Uea:							
Urban land.							
WkmA, WkmB2:							
Waupecan	---	<80	---	---	High	Moderate	Low.
WmnA:							
Waynetown	---	<80	---	---	High	High	Low.
WmpA, WmpB2:							
Wea	---	<80	---	---	Moderate	Moderate	Moderate.
WqvA:							
Westland	---	<80	---	---	High	High	Low.
WsuA, WtaA:							
Whitaker	---	<80	---	---	High	High	Low.
WufB2:							
Williamstown	---	<80	---	---	High	High	Low.

Table 19.--Soil Features

Map symbol and soil name	Bedrock		Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Initial	Total		Uncoated steel	Concrete
		In	*In*	*In*			
WvaA, WvaB2:							
Wingate------------	---	<80	---	---	High--------	High--------	Low.
XabA, XabB2:							
Xenia--------------	---	<80	---	---	High--------	High--------	Low.
XfuB2, XfuC2:							
Miami--------------	---	<80	---	---	Moderate----	Moderate----	Low.
Rainsville---------	---	<80	---	---	Moderate----	Moderate----	Moderate.
YedA:							
Yeddo--------------	---	<80	---	---	High--------	High--------	Moderate.

Table 20.--Classification of the Soils

Soil name	Family or higher taxonomic class
Adeland	Fine, mixed, superactive, mesic Aeric Endoaqualfs
Adrian	Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists
Allison	Fine-silty, mixed, superactive, mesic Cumulic Hapludolls
Angatoka	Fine-silty, mixed, superactive, mesic Ultic Hapludalfs
Ayrshire	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Battleground	Fine-silty, mixed, superactive, mesic Fluventic Hapludolls
Beaucoup	Fine-silty, mixed, superactive, mesic Fluvaquentic Endoaquolls
Beckville	Coarse-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts
Birkbeck	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Brenton	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Brouillett	Fine-loamy, mixed, superactive, mesic Aquic Cumulic Hapludolls
Camden	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Cates	Loamy-skeletal, mixed, active, mesic Dystric Eutrudepts
Chalmers	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Coloma	Mixed, mesic Lamellic Udipsamments
Crane	Fine-loamy, mixed, active, mesic Aquic Argiudolls
Crosby	Fine, mixed, active, mesic Aeric Epiaqualfs
Drummer	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Edwardsville	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Eel	Fine-loamy, mixed, superactive, mesic Fluvaquentic Eutrudepts
Elston	Coarse-loamy, mixed, active, mesic Typic Argiudolls
Fairpoint	Loamy-skeletal, mixed, active, nonacid, mesic Typic Udorthents
Fincastle	Fine-silty, mixed, superactive, mesic Aeric Epiaqualfs
Genesee	Fine-loamy, mixed, superactive, mesic Fluventic Eutrudepts
Judyville	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Kendallville	Fine-loamy, mixed, superactive, mesic Typic Hapludalfs
Lafayette	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Landes	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lash	Coarse-loamy, mixed, superactive, mesic Fluventic Hapludolls
Lauramie	Fine-loamy, mixed, active, mesic Mollic Hapludalfs
Loudonville	Fine-loamy, mixed, active, mesic Ultic Hapludalfs
Mahalaland	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Mahalasville	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Martinsville	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Mellott	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Miami	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Minnehaha	Fine-loamy, mixed, active, nonacid, mesic Alfic Udarents
Mitiwanga	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Ockley	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Octagon	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Pella	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Pinevillage	Loamy-skeletal, mixed, superactive, calcareous, mesic Typic Udifluvents
Princeton	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Ragsdale	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Rainsville	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Raub	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Rensselaer	Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Rockmill	Fine-silty, mixed, superactive, nonacid, mesic Thapto-Histic Fluvaquents
Rodman	Sandy-skeletal, mixed, mesic Typic Hapludolls
Rossburg	Fine-loamy, mixed, superactive, mesic Fluventic Hapludolls
Rush	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Russell	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Shoals	Fine-loamy, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts
Silverwood	Loamy-skeletal, mixed, active, mesic Typic Hapludalfs
Sleeth	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Sloan	Fine-loamy, mixed, superactive, mesic Fluvaquentic Endoaquolls
Southwest	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
St. Charles	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Starks	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Strawn	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Throckmorton	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Toronto	Fine-silty, mixed, superactive, mesic Udollic Epiaqualfs
Totanang	Fine-silty, mixed, superactive, mesic Oxyaquic Argiudolls
Treaty	Fine-silty, mixed, superactive, mesic Typic Argiaquolls
Udorthents	Udorthents

Table 20.--Classification of the Soils

Soil name	Family or higher taxonomic class
Waupecan	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Waynetown	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Wea	Fine-loamy, mixed, active, mesic Typic Argiudolls
Westland	Fine-loamy, mixed, superactive, mesic Typic Argiaquolls
Whitaker	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Williamstown	Fine-loamy, mixed, active, mesic Aquic Hapludalfs
Wingate	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Xenia	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Yeddo	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs