United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Soil Survey of Ashtabula County, Ohio

How To Use This Soil Survey

General Soil Map

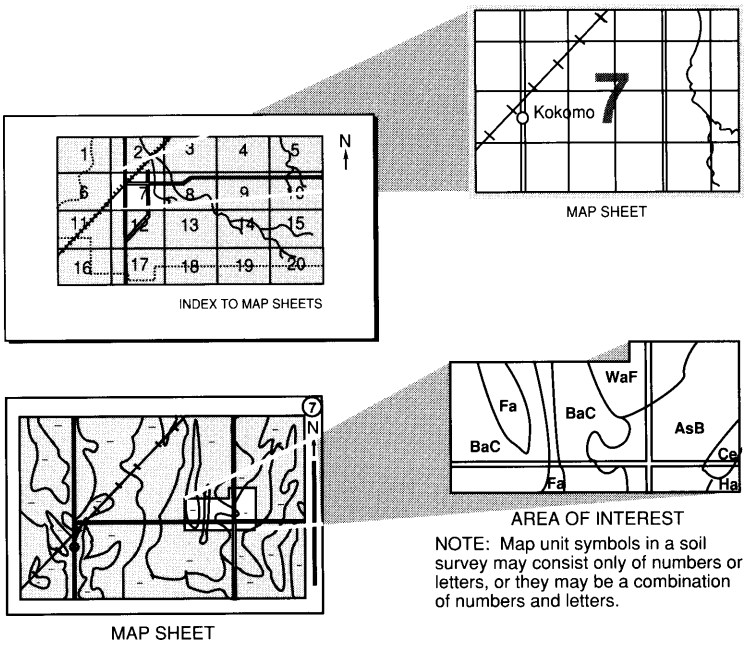
The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

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

Detailed Soil Maps

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

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



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.

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.

A **State Soil Geomorphic Data Base (STATSGO)** is available for the county. This data base consists of a soils map at a scale of 1:250,000 and descriptions of groups of associated soils. It replaces the general soil map published in older soil surveys. The map and the data base can be used for multicounty planning, and map output can be tailored for a specific use. More information about the State Soil Geographic Data Base for this county, or any portion of Ohio, is available at the local office of the Natural Resources Conservation Service.

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 1998. Soil names and descriptions were approved in 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2001. This survey was made cooperatively by the Natural Resources Conservation Service, Ohio Department of Natural Resources–Division of Soil and Water Conservation, Ohio Agricultural Research and Development Center, the Ohio State University Extension, the Ashtabula County Commissioners, and the Ashtabula Soil and Water Conservation District. The survey is part of the technical assistance furnished to the Ashtabula Soil and Water Conservation District.

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

Cover: Specialty crops such as orchards and vineyards, often grown on Platea and Darien soils, are mostly in the northern part of Ashtabula County where Lake Erie moderates the transition of seasons.

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

Contents

Foreword

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

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

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

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

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Ohio State University Extension.

Terry J. Cosby
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Ashtabula County, Ohio

By E. Larry Milliron, Natural Resources Conservation Service; Stephen T. Prebonick and James R. Svoboda, Ohio Department of Natural Resources, Division of Soil and Water Conservation

Fieldwork by Floyd E. McCleary, Stephen T. Prebonick, and James R. Svoboda, Ohio Department of Natural Resources, Division of Soil and Water Conservation

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

This soil survey updates and supersedes the survey of Ashtabula County published in 1973 (Reeder and others, 1973). It provides additional descriptive data, soil interpretations, and larger scale maps on a newer photographic background.

Background

This survey was made to provide updated information about the soils of Ashtabula County, Ohio. Previous work in soil survey for Ashtabula County was published in 1904, Soil Survey of the Ashtabula Area, Ohio (Martin and Carr, 1904) and 1973, Soil Survey of Ashtabula County, Ohio (Reeder and others, 1973).

Knowledge and understanding of soils increased as soil survey has progressed in Ohio. Many new soil types have been identified and defined which were not previously recognized. Also, the modern system of soil classification has been refined to provide more accurate and additional interpretations. A careful evaluation of the 1973 Soil Survey of Ashtabula County was conducted at the request of the Ashtabula County Commissioners. The evaluation revealed significant need to update the soil survey and the cooperative effort was subsequently undertaken.

General Nature of the County

Ashtabula County is in the far northeastern corner of Ohio with an area of 455,104 acres, or 711 square miles, including land covered by water, making it the largest county in Ohio (fig. 1). The population of the county was 101,278 in 2000 (United States Department of Commerce, 2000). Jefferson, the county seat, is located in the north central part of the county. The largest city is Ashtabula. The heaviest industry is centered in the north, especially around the city of Ashtabula. Shipping docks are located at Ashtabula Harbor.

Ashtabula County soils range widely in natural drainage, texture, and other characteristics. Most coarse textured soils are found on the lake plain, in soils formed from beach deposits, and in the Pymatuning River Valley, in soils formed from outwash deposits. Finer textured soils, formed in glacial till and lacustrine sediments, account for the majority of county soils. Topography is generally nearly level or gently

Figure 1.—Location of Ashtabula County in Ohio.

sloping with the greatest relief found in areas of stream dissection, on beach ridges, and the bluffs along Lake Erie. The major management concerns for cultivated crops are wetness and erosion.

Most of the larger farms are found south of Interstate 90. Grain and dairy farms are important agricultural industries. Nurseries and orchards are important industries located mostly in the northern part of the county, on the post glacial beaches within the lake plain.

Approximately 50 percent of the county is wooded (Soil Conservation Service, 1985). This includes former croplands and pasture fields that are reverting to woodland. Areas that are difficult to drain are often left idle. More productive, better-drained fields are kept in crop production.

Climate

Prepared by the Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from First Order station Cleveland, Ohio.

Tables 1a and 1b give data on temperature and precipitation for the survey area as recorded at Ashtabula and Dorset in the period 1961 to 1990. Tables 2a and 2b show probable dates of the first freeze in fall and the last freeze in spring. Tables 3a and 3b provide data on the length of the growing season.

In winter, the average temperature is 27.2 degrees F at Ashtabula and 24.8 degrees at Dorset. The average daily minimum temperature is 20.0 degrees at Ashtabula and 16.3 degrees at Dorset. The lowest temperature on record at Ashtabula was –26 degrees, and the lowest at Dorset was –28 degrees, both occurring on January 19, 1994. In summer, the average temperature is 69.1 degrees at Ashtabula and 67.2 degrees at Dorset. The average daily maximum temperature is

78.9 degrees at Ashtabula and 79.1 degrees at Dorset. The highest temperature on record at Ashtabula is 100 degrees on June 26, 1988, and the highest at Dorset also is 100, which occurred on July 17, also in 1988.

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

The average annual total precipitation is about 38.64 inches at Ashtabula, and about 42.98 inches at Dorset. Of these amounts, about 24 inches, or 56 to 60 percent, usually falls in May through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 4.70 inches at Ashtabula on September 13, 1960, and 5.35 inches at Dorset on September 14, 1979. Thunderstorms occur on about 35 days each year, and most occur between May and August.

The average seasonal snowfall is quite variable across this county, with a lake-enhanced snow zone parallel to Lake Erie, and inland some 10 to 20 miles. At Ashtabula, on the lake, the average annual snowfall is 50.4 inches, while inland at Dorset it is 70.2 inches. Some areas in the snow zone may receive even more than 70 inches. The greatest snow depth at any one time during the period of record was 35 inches at Ashtabula on February 6, 1977, and 30 inches at Dorset on February 7, 1978. On an average, 36 days per year have at least 1 inch of snow on the ground at Ashtabula, while 75 days are generally snow-covered at Dorset. The heaviest 1-day snowfalls on record were 18.0 inches at Ashtabula, recorded on November 11, 1996; and 14.0 inches at Dorset on November 22, 1989.

The average relative humidity in mid-afternoon is about 61 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines 65 percent of the time in summer and 31 percent in winter. The prevailing wind is from the south. Average wind speed is highest, around 12 miles per hour, from November to April.

History

The earliest known inhabitants of the county were the pre-historic mound builders. Burial mounds and other types of earthen works can still be found in Ashtabula County. Algonquin Indians are the earliest natives with whom we have historic contact (Williams, 1878). For many years the Erie Tribe laid claim to all land south of Lake Erie. Later, the Eries tried to defeat the Iroquois Nation but instead their tribe was completely decimated. In 1794, after many years of broken treaties and bloodshed, the Indians ceded all land east of the Cuyahoga River with the signing of The Treaty of Greenville. This agreement opened up vast areas of land for settlement.

During colonial times, European monarchs had a very limited knowledge of New World geography. Their misconceptions resulted in the same areas of land being given to different colonies (Williams, 1878). At one time, New York, Virginia, Massachusetts, and Connecticut laid claim to an area of land which included what is now Ashtabula County. All of the colonies, except Connecticut, relinquished their claims. Connecticut based its claim on the Connecticut Charter granted by King Charles II of England. Present day Ashtabula County was once part of the Connecticut Western Reserve.

After the Revolutionary War, the federal government and the state of Connecticut signed an agreement wherein the federal government gave up all rights to the Western Reserve land while reserving the right of jurisdiction. The state of Connecticut then sold the land to the Connecticut Land Company which conducted a land survey, issued land certificates, and then sold property to future settlers.

In 1805 Trumbull County was organized. In 1811 parts of northern Trumbull County were organized into Ashtabula County. Ashtabula County is named for the Ashtabula River. “Ashtabula” is an American Indian word meaning “Fish River”. During the early years, industry naturally centered around agriculture. Ship building industries developed after Ashtabula Harbor was improved. As dairy farming increased, cheese making became an important industry. As large urban areas developed, the demand for fresh milk increased, limiting the supply to cheese factories and contributing to their decline. Railroads spread through the county enabling heavy industry to grow. Ore and coal docks were established at Ashtabula Harbor.

Ashtabula County was noted for its participation in the anti-slavery movement. A very efficient “underground railroad” extended from Wheeling, West Virginia on the Ohio River, to Ashtabula Harbor.

Physiography, Relief and Drainage

Dr. Charles Carter, Associate Professor of Geology, The University of Akron, helped prepare this section.

Ashtabula County is in two contrasting major physiographic provinces. The northern part, a belt about 3½ to 5½ miles wide adjacent to Lake Erie, is in the Eastern Lake Section of the Central Lowland Province or commonly referred to as the Lake Plain. To the south of the Lake Plain is the Southern New York Section of the Appalachian Plateau Province commonly referred to the Allegheny Plateau. The Grand River Lowland is within the plateau on the western side of the county. These two provinces are generally separated by the Portage Escarpment, sometimes referred to as the Mississippian Escarpment. The Portage Escarpment in Ashtabula County is a composite feature which averages about 1½ miles wide but in places is about 3 miles wide. The escarpment extends from central New York westward to Cleveland and then south to Kentucky and acted as a significant hindrance to the flow of glaciers across it.

The Allegheny Plateau rises gradually to the south of the escarpment. Except for areas of stream dissection, the plateau’s surface is relatively flat, averaging ten to twenty feet of fall per mile. The plateau is divided into four sections: Western, West Central, Central, and Southeastern. The Grand River Lowland separates the Western and West Central sections. The lowland was the site of ancient lakes during past glaciations.

Glacial erosion dramatically planed, rounded, and smoothed the hills and enlarged existing valleys. Subsequent glacial depositions filled and flattened the valley floors. The relief of the county is primarily nearly level and gently undulating in the northern, western and south central parts of the county. Steep areas are along the streams. The two morainic areas and areas of Venango and Cambridge soils are more rolling than the rest of the county. Elevation above sea level ranges from 572 feet at the Lake Erie shoreline to slightly over 1,180 feet at Owens Hill in Andover. In the plateau region, the dominant elevation mostly ranges from 950 to 1,100 feet.

A major feature deposited by the Wisconsinan Glacier is the Defiance End Moraine (White and Totten, 1979). This terminal moraine crosses the entire state of Ohio and was created as a ridge feature when the Wisconsinan glacier halted its southward advance. In Ashtabula County this terminal moraine extends from Wayne Township eastward to Pierpont Township. Other moraine ridge features are the Euclid, Painesville, and Ashtabula moraines located on the Portage Escarpment from Harpersfield Township eastward to Conneaut Township.

Drainageways are generally poorly developed on broad nearly level uplands but are better developed on marginal and steeper slopes. The better drainage of the marginal slopes of the Allegheny Plateau is suggested by the closely spaced parallel streams flowing down the slopes to major streams. These well-defined, trellis-pattern drainage systems have been called the finest examples of this type in Ohio. Trellis

drainage patterns are almost always the result of structural control by dipping bedrock. Trellis drainage patterns are especially well developed along the western margin of the Plateau in Colebrook, New Lime, and Lenox Townships where streams flow west to Rock Creek. Parallel eastward flowing streams are on the west side of the deep Pymatuning Creek Valley and westward flowing streams on the east side of the valley. More or less parallel streams flow down the escarpment on either side of the Grand River Lowland.

Roughly the southeast one-quarter of the county drains into the Ohio River through Mosquito Creek, Pymatuning Creek, and the tributaries of the Shenango River. Major streams in the county that flow into Lake Erie include Conneaut Creek, the Ashtabula River and the Grand River that dissect the Ashtabula Escarpment and drain north into Lake Erie. Bronson Creek, Center Creek, and Ashtabula Creek run parallel to the Portage Escarpment. Drainage on the lake plain is generally poor except near stream channels and on ancient beach ridges. Where north-flowing streams empty into Lake Erie, topographical relief is more gradual.

Mineral Resources

Sand and Gravel

In modern times sand and gravel is a very important resource for construction and industrial uses. These resources in Ashtabula County have been used for foundry sand, building aggregate, paving materials, and other uses. At first, many small pits were used but now larger operations are common. The quality of rock materials of the glacial deposits varies considerably from place to place, primarily due to the origin of the rock materials. Rock strength ranges from very strong in relatively unweathered igneous materials transported into Ashtabula County from Canada by the glaciers, to very soft weathered shales that were ripped off the upper bedrock stratas and incorporated into till or water sorted with the igneous rock fragments as gravel outwash deposits. The range of particle or fragment size determines need for washing and screening.

The material washed into beaches along ancient shorelines is used extensively as a source of aggregate in Ashtabula County. Although the quality of the material is generally poor and the recovering and processing are more difficult than elsewhere, the location and availability of beach deposits have continued to be important for aggregate materials.

Bog Ores

Bog ores are iron ores that were formed through precipitation. The ore was abundant enough in swampy areas of the lake plain that it supported the Ohio Furnace southeast of Conneaut for about 15 years from 1830 to 1845. Such bog ores commonly contained 25 to 35 percent iron. Generally metal produced was cast directly into ware such as stove plates, pots, kettles, etc.

Sandstone

Berea sandstone was once economically important and quarried as building stone in Windsor Township. Generally the Berea sandstone is fine in texture, argillaceous in composition, and bluish gray in color. This bedrock also serves as excellent aquifers and has been a large producer of gas and oil in eastern Ohio, and in places, is a producer of brines.

Salt

Rock salt beds belong to the Saline Formation, an upper division of the Silurian System. Rock salt occurs at a depth of about 2,300 feet below the surface in Harpersfield Township.

Natural Gas and Oil

Oil and gas reserves are recovered from drilled wells located throughout the county. Beginning as early as 1880, shallow wells were drilled in Devonian Ohio Shale that produced natural gas primarily for domestic use. As technology improved, wells were drilled deeper to tap oil and gas reserves in new formations (Oriskany Sandstone, 1899; Clinton Sandstone, 1929; Rose Run Sandstone, 1981).

Today the majority of the approximately 2,000 active wells in Ashtabula County are producing from the Clinton Sandstone. Many older wells are plugged and abandoned. However, exploration and drilling operations are active throughout the county.

Ground Water

Surface water coming from lakes and streams and water pumped from underground sources supply most of the water needs in Ashtabula County. Ground water in Ashtabula County varies considerably in quantity and quality. The two major sources of ground water are from consolidated layers of sandstone and shale and unconsolidated layers of glacial till, outwash, and lake sediments (Hartzell and Orr, 1988).

Glacial deposits hold varying quantities of water. Unconsolidated deposits from glacial times cover the county and range in thickness from about two feet to over two hundred feet. In general, outwash deposits and beach ridges offer better supplies than glacial till or lake sediments. Domestic wells in sand and gravel yield 5 to 10 gallons per minute (GPM) with up to 30 GPM reported from some wells completed in the thicker deposits located in the northern parts of the county. Wells in glacial till typically yield considerably less (less than 5 GPM).

The quantity of water coming from rock formations depends on rock texture or permeability, bedding joints and planes, thickness of the formation, and type of material covering the formation (Banks and Feldman, 1970). Shale, being a very dense, fine grained rock is a poor source of water. The only practical water storage is along joints and bedding planes. Wells in shale yield less than 3 GPM or are dry. Salt water may be encountered at depths as shallow as 50 feet into the rock strata. Sandstone, with larger grains and more openings, yields better water supplies although it is seldom very large. Wells drilled in sandstone yield from 5 to 15 GPM with some higher elevations yielding up to 15 to 20 GPM. Sandstone is encountered primarily in the southern part of the county.

Sulphur components in the bedrock underlying glacial or lacustrine deposits can influence ground water quality. Oxygen in the ground water oxidizes the sulphur components in the bedrock, then the sulphur components in solution influence water quality to varying degrees.

Wells drilled in glacial material must be cased and screened to the bottom of the well to prevent collapsing. Bedrock wells are usually cased to the top of the bedrock, then drilled “open hole” so water can permeate through the bedrock and flow into the well.

Dug wells, cisterns, and ponds are sometimes used to solve water supply problems. Surface and ground water pollution must be controlled to assure water quality. Information concerning specific sites can be obtained from the Ohio Department of Natural Resources, Division of Water.

Information on natural resources is available from The Ohio Department of Natural Resources and various local agencies within the county.

Geology

Glacial Geology

Ashtabula County was significantly reshaped by multiple glacial advances and recessions during the Pleistocene Epoch of geologic history. The glacial ice moving from north of the Lake Erie Basin, transported a mixture of mineral material that ranges in size from large boulders to clay. This material was more or less blended

with local soil materials and local surface bedrock and redeposited in various ways. When the climate warmed, the ice melted in retreat leaving behind several types of unconsolidated mineral deposits. These deposits, mostly till and outwash, have a layered sequence in which the more recent overlies older deposits to some depth where the native bedrock underlies the unconsolidated materials. These unconsolidated mantle materials total in thickness from 0 to more than 200 feet.

Another consequence of the glaciers as they moved into Ohio was to block the then-existing north-flowing drainageways. This created extensive lakes that greatly influenced first the sediment distribution of fluvial materials transported into them from their headwaters to the south and later the melting ice waterflow which moved and distributed outwash materials. It reversed the direction of streamflow in some of the valleys and caused the streams to find new outlets in others. After the ice melted, the streams in some of the large valleys, such as the Grand River, were too small to continue the former rate of natural, or geologic, erosion and now meander back and forth across the flood plain.

The retreat of the ice was erratic and halting. Where its edge remained for some time, a ridge of mineral material accumulated into a feature called an end or marginal moraine. In Ashtabula County the Defiance End Moraine is the southernmost moraine. The Euclid, Painesville, and Ashtabula moraines aligned with the Portage Escarpment define the edge of the Lake Plain to the north and the ground moraines to the south.

The glacial till in which the soils on till plains formed is mostly late Wisconsinan ground moraines (White and Totten, 1979). Hiram Till overlies the somewhat older till deposits in much of the western half of the county. The soils on most till plains in the eastern part of the county formed in these older tills, named Lavery and Kent Tills. Since these tills have less clay than the Hiram Till, the soils on till plains in the eastern part of the county generally have less clay in the subsoil than those in the western part of the county.

As the climate warmed and the glacier melted rapidly, a large volume of water spread over the landscape. This water carried, sorted, and deposited large amounts of gravel, sand, silt, and clay. Outwash sand and gravel, or glacio-fluvial deposits, occur as variably sorted and stratified deposits in the county. Much of the coarse material was later covered by finer textured loamy outwash. Chili and Chenango soils formed in glacial outwash.

The essentially flat surfaces of the lake plain were created by ancient predecessors of Lake Erie as glacial ice melted northward. The meltwaters were trapped between the ice mass to the north, the glacial deposits left behind to the south, and the eastern Continental Divide. Sediments were sorted and deposited on the bottoms of these temporary glacial lakes. The ice retreat took place in several stages resulting in various lake levels and surface extents, with a different outlet of the lake water in each instance. Once the water drained away, the ancient smooth lake bottom was left as upland. Associated with the longer-term lake level stages are beachlines that persists today, some more distinct than others.

Surficial Geology

Varying thicknesses of glacial till, glacial outwash, lacustrine sediments, beach deposits, recent alluvium, accumulated organic matter, and bedrock outcrop comprise the surface geology of the county. All the surficial glacial deposits of Ashtabula County are Wisconsinan age. Recent alluvium is Holocene in age.

Adjacent to Lake Erie and south to the Portage Escarpment moraines is the lake plain consisting of wave-washed till, glacial beach deposits, and lacustrine sediments. The beaches of ancient lakes are marked by sandy and gravelly ridges running somewhat parallel to present day Lake Erie. The most prominent are North Ridge (ancient Lake Warren) and South Ridge (ancient Lake Whittlesey). Drainage on the

lake plain is generally poor except near stream dissections and on ancient beach ridges.

Wave action, longshore currents, and wind along with the higher water levels of the ancient lakes determined the topography of a 3½ to 5½ mile wide strip bordering the present day lake. Three prominent wave-cut cliffs and terraces, each terrace having two to six beaches, delineate the limits of ancient lakes. Late-glacial and post-glacial lakes, lasting from seventy-five to three hundred or more years, left a series of sand and gravel ridges on the terraces.

The most prominent beach ridges from the highest to the lowest elevation are Maumee I, II, III, Whittlesey, Arkona I, II, III, Warren I, II, III, Wayne, Grassmere, and Lundy. The last three are discontinuous and not extensive. The Whittlesey Beach, generally at 735 feet elevation, associated with the Middle (Whittlesey) Cliff, is regarded as the most prominent relict beach in northern Ohio.

The major beach deposits of glacial lakes Warren and Whittlesey generally correspond to areas of Otisville, Chenango, Elnora, Colonie, and Kingsville soils. The Conneaut, Painsville, and Harbor soils areas contain Ashtabula till, lacustrine sediments, and beach deposits of the higher stages of what is now Lake Erie. Most of the lake plain ends abruptly in cliffs from 20 to 80 feet high as it borders Lake Erie.

A band of moraines, five to six mile inland, on the Portage Escarpment roughly parallels the Lake Erie shoreline. The eastern half of the moraine is capped with the youngest till in Ohio, the Ashtabula Till, which was deposited by the last ice advance.

Ground moraine, also known as glacial drift and glacial till, covers most of the plateau. From the escarpment moraines south to the end moraine, the Defiance Moraine, deposits are mostly Hiram Till. In eroded areas, or areas of non-deposition of Hiram Till, Lavery Till may be at the surface. Kent Till is found at the surface in the southeastern townships bordering the Pymatuning Reservoir. Kent Till is the oldest till extensively exposed to the surface in the County.

Drift thickness ranges from zero, where bedrock outcrops, to more than two hundred feet, in parts of the buried Grand River Valley. Differences in thickness are attributed to the filling of pre-glacial valleys, uneven deposition, and post-glacial erosion. Glacial till is thickest where end moraines cross buried valleys. End moraine deposits range from fifty to more than one hundred feet in thickness. A few limited exposures of older tills can be observed in stream cuts along valley walls.

The Defiance Moraine is a prominent terminal moraine crossing the state of Ohio. It is comprised of glacial material deposited as the Wisconsinan Glaciation temporarily halted its southward advance. In Ashtabula County, this terminal moraine lies across the southeastern corner.

The valley of Pymatuning Creek, in the southeast corner of the county, contains extensive deposits of glacial outwash. Outwash sand and gravel deposits occur as irregular kame terraces along the sides of valleys. Extensive lacustrine sediments occur in the Grand River Valley. Fitchville, Sebring, Canadice, and Caneadea soils formed in silty and clayey lacustrine sediments.

Organic matter accumulated as trees, grasses, and sedges died and settled to the bottom of shallow ponds, swamps and lakes. Carlisle and Willette soils formed in the partially decomposed remains of plants. They persist in depressions and drainageways in a few scattered areas where the water table is high enough to protect organic materials from rapid or total decomposition (fig. 2).

Where the bedrock is exposed, either by glaciation, erosion, or merely never having been covered by unconsolidated material, soils are usually slower to form. Soft sandstone and shale is relatively easy to weather into parent materials. In places, outcrops of shale and sandstone are exposed in low stream and river cuts and thus are the oldest bedrocks exposed to the surface.

Pioneering settlers noted “bouldery clay soils” in Ashtabula County. These rocks were dominantly igneous and mainly distributed over areas of glacial till and outwash

Figure 2.—The prolific hydrophytic vegetation of swamps accumulates under ponded water and becomes parent materials of Carlisle and Willette organic soils.

(fig. 3). Over the years, the large rocks have been continually removed from fields committed to cultivation and the rocks were collected into rock piles (fig. 4). In the meantime, these rock piles which were significantly more conspicuous in earlier times have been utilized for farmstead improvements such as foundation stone and driveways.

Bedrock Geology

The upper bedrock of the county is sedimentary layers of sand silt and clay of ocean origin that have consolidated into rock. The bedrock underlying the soils of Ashtabula County is dominantly shale and sandstone of the Devonian and Mississippian systems. Most of the county is underlain by Chagrin shale of the Ohio formation of Devonian age.

Outcrops of bedrock generally are on escarpments along the streams. In a few soils, a part of the substratum formed from residuum of bedrock or has been influenced by the bedrock. The substratum of the Hornell soils formed in weathered shale.

Southern parts of the county have shale, siltstone, and sandstone of Mississippian age as the uppermost bedrock. The moderately deep Mitawanga soils are in Windsor and Hartsgrove Townships and in the southern part of Trumbull Township. A part of their substratum has been influenced by the Berea sandstone of the lower Mississippian system. The Berea sandstone is evident in a broad belt extending across the southern part of Ashtabula County.

Farming

Land used for agriculture has been on a decline partly due to the depressed agricultural economy and partly due to the increasing rate of urbanization of former farmland areas. There are two distinctly different agricultural areas in Ashtabula County. The northern part of the county is generally the relict lake plain and the Portage Escarpment with its moraines. This land area borders Lake Erie and extends inland approximately four miles. The area is characterized by having a climate in

Figure 3.—The large light colored igneous stone is a hindrance to cultivation and represents the basis of the pioneer account of 'bouldery clay soils'.

Figure 4.—Relatively few farmstead rock piles remain in Ashtabula County because they provide material for construction.

which temperatures are moderated by Lake Erie, resulting in more frost-free days and a longer growing season. The moderating effect of Lake Erie diminishes as distance from the lake increases. The region is especially suited for specialty crops such as

grapes, fruit trees, nursery stock, and vegetables. Grape and fruit tree production are concentrated in the Geneva and Harpersfield areas (fig. 5). Much of the area suited for specialty crop production is changing over to urban land use.

South of the Portage Escarpment with its moraines the climate is contrasting. The growing season is shorter than in most other parts of Ohio. Dairy farming is the predominant agricultural use, accounting for approximately 47 percent of the gross farm income in 1999 (Ohio Agricultural Statistics Service, 1999). The main crops grown are those for dairy and other livestock feed, mainly hay, corn, and oats. Wheat, soybeans, and barley are also grown as well as some potatoes. The county has a long-term trend of cropland reverting to woodland. Presently over fifty percent of the acreage in the county is considered woodland.

Except for the well drained soils on outwash kames, valley trains, and beach ridges, crop production on most soils can be improved by installing drainage systems if outlet ditches are available.

How This Survey Was Made

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

The soils and miscellaneous areas in Ashtabula County 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

Figure 5.—Grapes are a specialty crop of economic importance in Ashtabula County and are mostly grown on Platea, Darien and Pierpont soils.

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.

Miscellaneous areas such as gravel pits, urban land, and quarries are identified where naturally occurring soils have been extensively altered by human activities. These areas are identified by aerial photo interpretation. Soil scientists make field observations to confirm interpretations and adjust boundary lines. Existing soil conditions can be highly variable within and between miscellaneous delineations.

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

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

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

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

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

The descriptions, names and delineations of the soils in Ashtabula County do not fully agree with those of the soils as published in adjacent survey areas of Pennsylvania. These differences are acknowledged due to the better knowledge of soils, modifications in series concepts, or variations in the extent of the soils in the survey areas.

Soil Survey Procedures

The general policies, standards, and procedures followed in making the survey are described in the “National Soil Survey Handbook”, Natural Resources Conservation Service, USDA, and the “Soil Survey Manual”, U.S. Department of Agriculture Handbook No. 18, and “Soil Taxonomy”, U.S. Department of Agriculture Handbook No. 436.

Other reference materials include the Soil Survey of Ashtabula County, Ohio issued in 1973 (Reeder and others, 1973), archived documentary records, aerial photographs, both black and white and color infrared coverages, and relevant scientific and research reports in agronomy, engineering, geology, and soils.

Ashtabula County is one of the first counties in Ohio to have the soil survey updated. Some soils required more field work than others to revise the database to current criteria. For example, some updates in Soil Taxonomy influenced some previous soil correlations more than others or updates in the National Soil Survey Handbook impacted some map units more than others of the 1973 survey. Fieldwork involved activities to evaluate prior correlations and gathering documentation for a modern correlation.

Patterns within the soil landscape are often complex. To provide more accurate soil maps, some areas were remapped to delineate soil types that were not recognized in the 1973 report.

Documentation for the soil database includes: (1) transects to record soil profile features within soil map units; (2) detailed soil pedon descriptions for representative references and correlation; (3) soil sampling for laboratory analysis and evaluation of those analysis; and (4) redrafting soil maps to reflect new information and improve accuracy or usefulness.

Soil scientists evaluated map unit designs and the soil types mapped in those units to determine if significant taxonomic or interpretive differences existed. Soils occur in an orderly pattern on the landscape that is related to geology, landforms, relief, climate, and the natural vegetation of the area. By observing the soils in the survey area and relating their attributes to specific positions or segments of the landscape, a concept or model of how the individual soils were formed is developed. This model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil at any specific location on the landscape.

Soils transition in their various features across the landscape. Some transitions are gradual and subtle and the corresponding map unit is more difficult to recognize. Others are more contrasting and abrupt and the corresponding map unit is easily associated. Consistent professional judgement is required to determine and accurately place the boundary between the critical soil conditions of the landscape. Patterns of ecological relationships associated with specific soil conditions are also helpful and used by soil scientists in identifying soil map delineations.

Soil profiles are scrutinized carefully for better understanding of the soil formation processes and for proper classification. Attributes such as layer distinction, color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features enables soil scientists to identify soils. Soil profiles are then classified by the conventions of Soil Taxonomy. 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.

During field work, the soils were examined using hand augers and soil tubes as the soil scientists made walking transects across the land. Soils were examined to deeper depth from dug pits and samples extracted by truck mounted hydraulic probes. Opportunities to observe soils at roadcuts, construction sites, and back hoe pits dug for site-specific evaluations were maximized.

General Soil Map Units

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

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

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

1. Conneaut-Painesville-Elnora Association

Very deep, nearly level and gently sloping, somewhat poorly drained and moderately well drained soils that formed in coarse to moderately fine textured glaciolacustrine sediments and the underlying till or in sandy glacial lake, eolian, and deltaic sediments on the lake plain

Setting

Landform: Lake plain (fig. 6)
Slope range: 0 to 5 percent

Composition

Extent of the association in the county: 14 percent
Extent of the soils in the association:
Conneaut soils: 23 percent
Painesville soils: 11 percent
Elnora soils: 7 percent
Minor soils: 59 percent

Soil Properties and Qualities

Conneaut
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Planar or convex flats
Parent material: Glaciolacustrine sediments, or loess underlain by till
Surface textural class: Silt loam
Slope: Nearly level

Painesville
Depth class: Very deep
Drainage class: Somewhat poorly drained

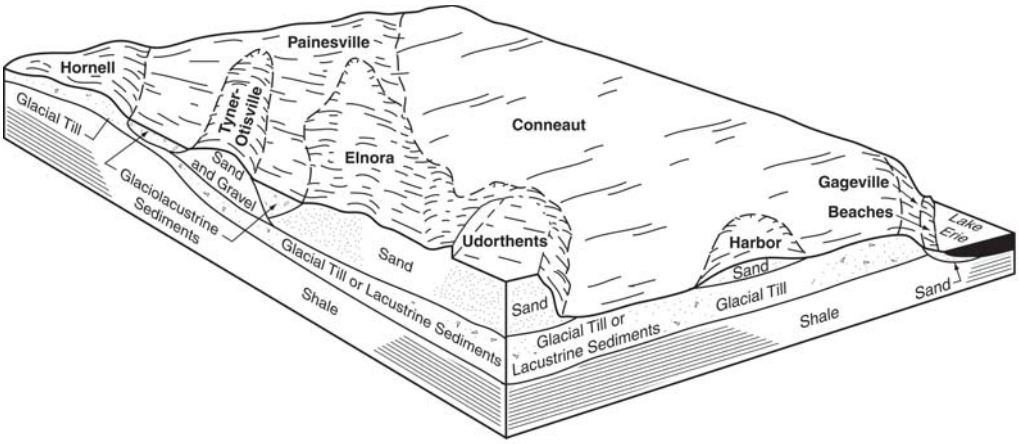


Figure 6.—Representative pattern of the soils and parent materials in the Conneaut-Painesville-Elnora association.

Position on the landform: Planar or convex flats
Parent material: Glaciolacustrine sediments and the underlying till
Surface textural class: Fine sandy loam
Slope: Nearly level

Elnora
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Slight rises, summits, shoulders and backslopes
Parent material: Sandy glacial lake, eolian, and deltaic sediments
Surface textural class: Loamy fine sand
Slope: Gently sloping

Minor Soils
- Udorthents
- Hornell
- Harbor
- Gageville
- Tyner
- Otisville
- Beaches

Use and Management

Major uses: Cropland, woodland, urban land
Management concerns: Detrimental effects of seasonal wetness, compaction, and high potential for groundwater pollution

2. Darien-Platea-Mill Association

Very deep, level to strongly sloping, somewhat poorly drained and poorly drained soils that formed in medium and moderately fine textured till on glaciated uplands

Setting

Landform: Till plain (fig. 7)
Slope range: 0 to 12 percent

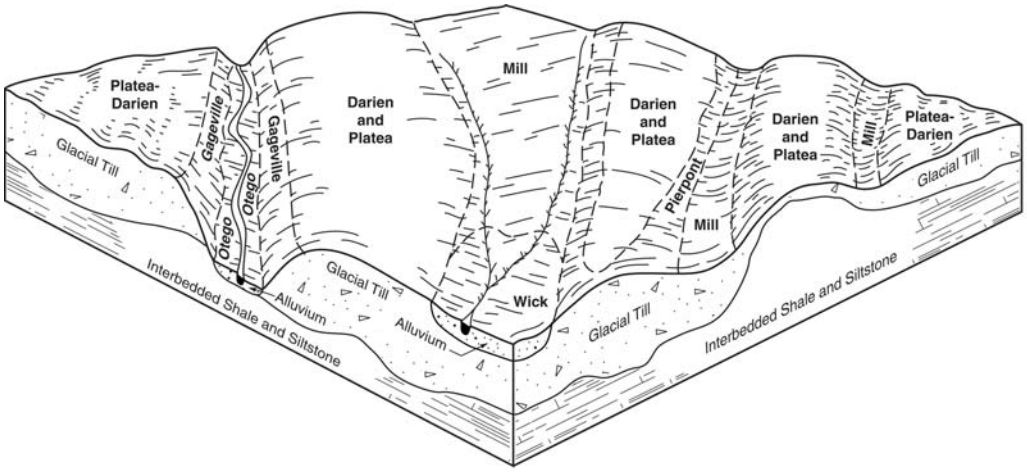


Figure 7.–Representative pattern of the soils and parent materials in the Darien-Platea-Mill association.

Composition

Extent of the association in the county: 12 percent
Extent of the soils in the association:
Darien soils: 35 percent
Platea soils: 28 percent
Mill soils: 11 percent
Minor soils: 26 percent

Soil Properties and Qualities

Darien
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Planar and convex flats, summits, shoulders backslopes and footslopes
Parent material: Till
Surface textural class: Silt loam
Slope: Nearly level to strongly sloping

Platea
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Micro-highs on flats summits, shoulders, backslopes and footslopes
Parent material: Till
Surface textural class: Silt loam
Slope: Nearly level to strongly sloping

Mill
Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Broad concave flats and swales
Parent material: Till
Surface textural class: Silt loam
Slope: Level and nearly level

Minor Soils
- Wick
- Gageville
- Pierpont
- Otego

Use and Management

Major uses: Woodland, cropland, pasture
Management concerns: Detrimental effects of wetness, low strength and ponding

3. Canadice-Caneadea-Fitchville Association

Very deep, level and gently sloping, poorly drained and somewhat poorly drained soils, that formed in moderately fine and fine textured sediments deposited from lakes and medium and moderately fine textured sediments deposited from streams on valley floors

Setting

Landform: Valley floor and stream terrace (fig. 8)
Slope range: 0 to 6 percent

Composition

Extent of the association in the county: 7 percent
Extent of the soils in the association:
Canadice soils: 31 percent
Caneadea soils: 19 percent
Fitchville soils: 14 percent
Minor soils: 36 percent

Soil Properties and Qualities

Canadice
Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Broad concave flats and depressions on treads

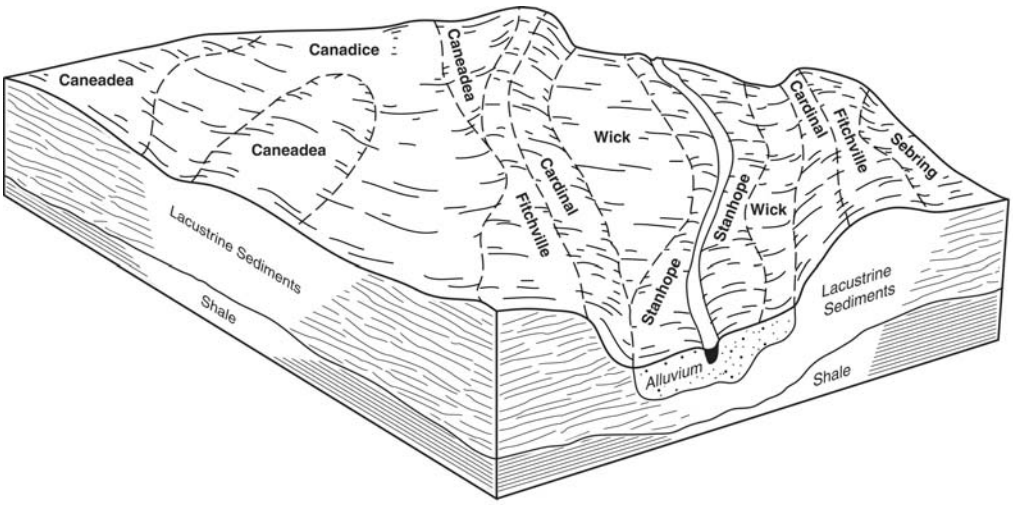


Figure 8.—Representative pattern of the soils and parent material in the Canadice-Caneadea-Fitchville association.

Parent material: Glaciolacustrine sediments
Surface textural class: Silt loam
Slope: Level and nearly level

Caneadea
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Planar or convex flats, rises, summits and shoulders on treads
Parent material: Glaciolacustrine sediments
Surface textural class: Silt loam
Slope: Nearly level and gently sloping

Fitchville
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Planar or convex flats, slight rises, summits, and shoulders on terrace treads
Parent material: Glaciolacustrine sediments
Surface textural class: Silt loam
Slope: Nearly level and gently sloping

Minor Soils
- Sebring
- Wick
- Cardinal
- Stanhope

Use and Management

Major uses: Woodland, cropland, pasture
Management concerns: Detrimental effects of wetness, low strength, and ponding

4. Mill Association

Very deep, level and nearly level, poorly drained soils that formed in medium and moderately fine textured till on glaciated uplands

Setting

Landform: Ground moraine (fig. 9)
Slope range: 0 to 2 percent

Composition

Extent of the association in the county: 16 percent
Extent of the soils in the association:
Mill soils: 70 percent
Minor soils: 30 percent

Soil Properties and Qualities

Mill
Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Broad concave flats and swales
Parent material: Till
Surface textural class: Silt loam
Slope: Level and nearly level

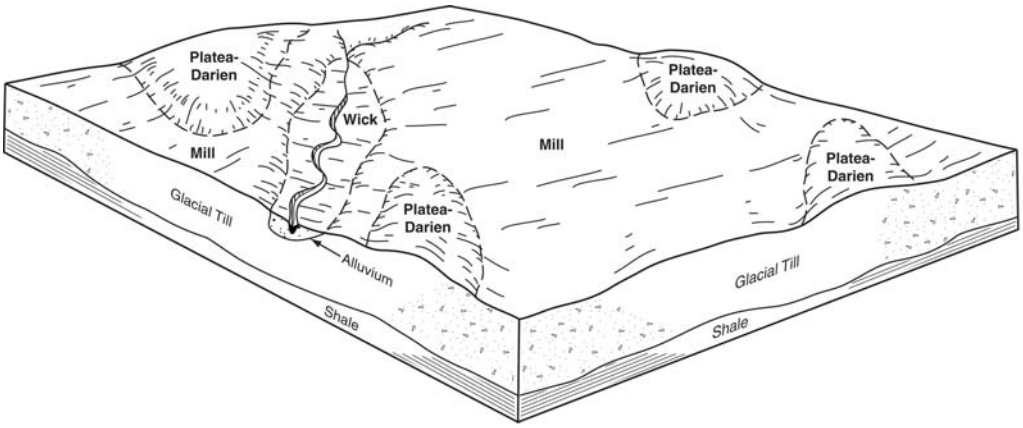


Figure 9.—Representative pattern of the soils and parent materials in the Mill association.

Minor Soils
- Platea
- Darien
- Wick

Use and Management

Major uses: Woodland, cropland, pasture
Management concerns: Detrimental effects of wetness, low strength, and ponding

5. Mill-Platea-Darien Association

Very deep, level and gently sloping, poorly drained and somewhat poorly drained soils that formed in medium and moderately fine textured till on glaciated uplands

Setting

Landform: Till plain
Slope range: 0 to 12 percent

Composition

Extent of the association in the county: 39 percent
Extent of the soils in the association:
Mill soils: 40 percent
Platea soils: 21 percent
Darien soils: 17 percent
Minor soils: 22 percent

Soil Properties and Qualities

Mill
Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Broad concave flats and swales
Parent material: Till
Surface textural class: Silt loam
Slope: Level and nearly level

Platea
Depth class: Very deep
Drainage class: Somewhat poorly drained

Position on the landform: Micro-highs on flats, summits, shoulders, backslopes, and footslopes
Parent material: Till
Surface textural class: Silt loam
Slope: Nearly level and gently sloping

Darien
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Planar and convex flats, summits, shoulders and backslopes
Parent material: Till
Surface textural class: Silt loam
Slope: Nearly level and gently sloping

Minor Soils
- Wick
- Stanhope
- Pierpont

Use and Management

Major uses: Woodland, cropland, pasture
Management concerns: Detrimental effects of wetness, low strength and ponding

6. Chenango-Wick-Stanhope Association

Very deep, level to moderately steep, very poorly drained to somewhat excessively drained soils that formed in medium to coarse textured glaciofluvial deposits and moderately fine to moderately coarse alluvium along drainageways

Setting

Landform: Outwash plain and terrace, kame and flood plain
Slope range: 0 to 18 percent

Composition

Extent of the association in the county: 2 percent
Extent of the soils in the association:
Chenango soils: 38 percent
Wick soils: 19 percent
Stanhope soils: 15 percent
Minor soils: 28 percent

Soil Properties and Qualities

Chenango
Depth class: Very deep
Drainage class: Somewhat excessively drained
Position on the landform:
Outwash plains: convex flats, summits, shoulders, backslopes, and footslopes
Outwash terraces: treads and risers
Kames: shoulders, backslopes and footslopes
Parent material: Glaciofluvial deposits
Surface textural class: Gravelly loam
Slope: Nearly level to moderately steep

Wick
Depth class: Very deep
Drainage class: Very poorly drained
Position on landform: Flood plain steps
Parent material: Alluvium
Surface textural class: Silt loam
Slope: Level and nearly level

Stanhope
Depth class: Very deep
Drainage class: Poorly drained
Position on the landform: Flood plain steps
Parent material: Alluvium
Surface textural class: Silt loam
Slope: Level and nearly level

Minor Soils
- Red Hook
- Sebring
- Willette
- Blakeslee

Use and Management

Major uses: Woodland, cropland, pasture
Management concerns: Detrimental effects of wetness, low strength, flooding and slope

7. Venango-Mill-Cambridge Association

Very deep, level and nearly level to moderately steep, poorly drained to moderately well drained soils that formed in medium and moderately fine textured till on glaciated uplands

Setting

Landform: Till plain (fig. 10)
Slope range: 0 to 18 percent

Composition

Extent of the association in the county: 10 percent
Extent of the soils in the association:
Venango soils: 36 percent
Mill soils: 33 percent
Cambridge soils: 21 percent
Minor soils: 10 percent

Soil Properties and Qualities

Venango
Depth class: Very deep
Drainage class: Somewhat poorly drained
Position on the landform: Planar or convex flats, summits, shoulders, and backslopes
Parent material: Till
Surface textural class: Silt loam
Slope: Nearly level and gently sloping

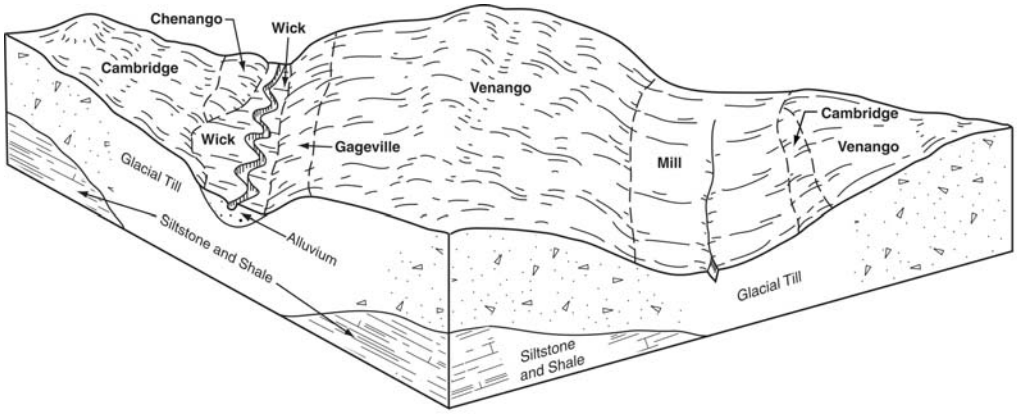


Figure 10.—Representative pattern of the soils and parent materials in the Venango-Mill-Cambridge association.

Mill
Depth class: Very deep
Drainage class: Poorly drained
Position on landform: Broad concave flats and swales
Parent material: Till
Surface textural class: Silt loam
Slope: Level and nearly level

Cambridge
Depth class: Very deep
Drainage class: Moderately well drained
Position on the landform: Knolls, summits, shoulders, backslopes and footslopes
Parent material: Till
Surface textural class: Silt loam
Slope: Nearly level to moderately steep

Minor Soils
- Wick
- Chenango
- Gageville

Use and Management

Major uses: Woodland, cropland, and pasture
Management concerns: Detrimental effects of wetness, low strength and ponding

Detailed Soil Map Units

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for the differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis

of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Blakeslee silt loam, 0 to 2 percent slopes is a phase of the Blakeslee series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, 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. Tyner-Otisville complex, 2 to 6 percent slopes is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Darien and Platea silt loams, 6 to 12 percent slopes is an undifferentiated group in this survey area.

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

The permeability class listed under Soil Properties and Qualities is defined for the most restrictive layer of the soil profile within 80 inches of the soil surface or that soil material above bedrock that is within 80 inches. The most restrictive layer is commonly in the subsoil or substratum or in a fragipan for soils that have fragipans. Thus permeability is not necessarily the same throughout the soil to a depth of 80 inches.

The shrink-swell class listed under Soil Properties and Qualities likewise is defined for the most limiting layer of the soil profile and not for the whole soil profile.

The detailed map unit descriptions list management statements for most major uses of the soils: cropland, pastureland, woodland, building sites, septic tank absorption fields, and local roads and streets. The management statements listed for a particular map unit address the most limiting features of that soil for a certain use. Some management statements suggest specific measures that may help alleviate the effects of these limiting soil features. The mention of such management measures is not a recommendation, especially where current laws or programs may prohibit an activity, such as installation of drainage. Even the best management practices cannot overcome some limitations of the soil.

Table 4 (Acreage and Proportionate Extent of the Map Units) 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.

Figure 11 shows the relationship between different geomorphic slope positions and slope terminology in Ashtabula County (Wysocki and others, 2000). These terms are applied only where slopes are more than 2 percent. More detailed definitions of these landform components are in the Glossary.

Be—Beaches

Setting

Landform: Beach ridge on lakeshore on lake plain
Size of areas: Up to about 35 acres

Map Unit Composition

Beaches and similar components: 90 percent

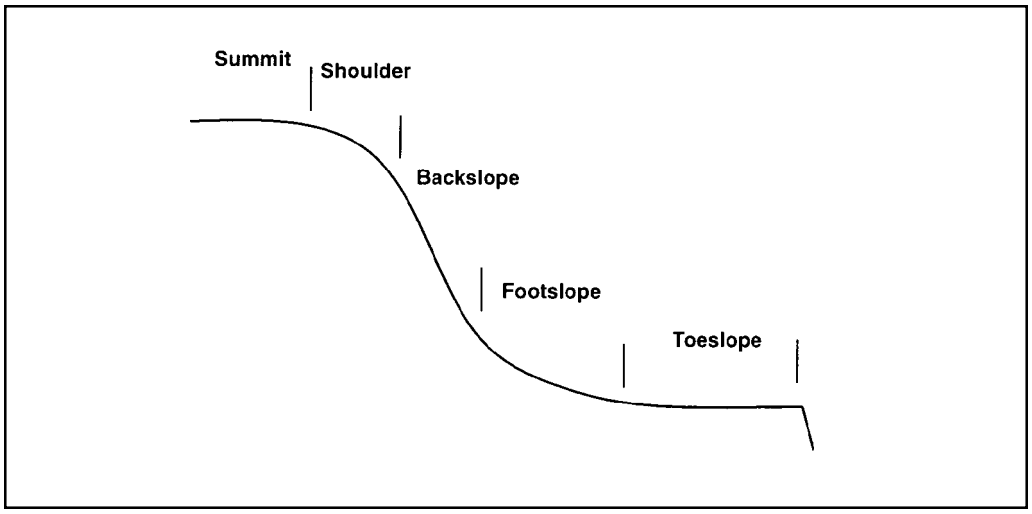


Figure 11.—Diagram showing the relationship between slope position and slope terminology.

Contrasting Components:
Tyner soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Beaches

Sandy, gravelly and cobbly shores that are washed and rewashed by waves, and are subject to inundation when lake levels rise.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

BkA—Blakeslee silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash plain; Outwash terrace
Position on the landform: Convex flat on plain; tread on terrace
Size of areas: About 2 to 15 acres

Map Unit Composition

Blakeslee and similar components: 92 percent
Similar components
Soils with less clay in the subsoil
Soils with less sand and more silt in the subsoil
Contrasting Components:
Chenango soils: 4 percent
Red Hook soils: 4 percent

Map Unit Interpretive Groups

Land capability classification: 1
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 6.8 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 28 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.3 to 3.5 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Fine-loamy glaciolacustrine deposits over stratified gravelly glaciofluvial deposits
Permeability: Moderate
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Very low
Wind erosion hazard: Slight
Distinctive soil property: Extremely gravelly layers

Use and Management Considerations

Cropland
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Systematic subsurface drainage will extend the period of planting and harvesting crops.

Pastureland
- This soil is well suited to pasture.

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: A-1
Hydric soil: No

BkB—Blakeslee silt loam, 2 to 6 percent slopes

Setting

Landform: Outwash plain; Outwash terrace
Position on the landform: Slight rise and low knoll on plain; tread on terrace
Size of areas: Up to about 45 acres

Map Unit Composition

Blakeslee and similar components: 93 percent
Similar components:
Soils with less sand and more silt in the subsoil
Soils with less clay in the subsoil
Contrasting Components:
Chenango soils: 3 percent
Red Hook soils: 2 percent
Soils with a silty lacustrine floor between 60 and 80 inches: 2 percent

Map Unit Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 5.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 28 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.3 to 3.5 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Fine-loamy glaciolacustrine deposits over stratified gravelly glaciofluvial deposits
Permeability: Moderate

Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight
Distinctive soil property: Extremely gravelly layers

Use and Management Considerations

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

Septic Tank Absorption Fields
- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

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

- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

BkC—Blakeslee silt loam, 6 to 12 percent slopes

Setting

Landform: Outwash plain; Outwash terrace
Position on the landform: Shoulders, backslopes and footslopes on plain; risers on terrace
Size of areas: Up to about 20 acres

Map Unit Composition

Blakeslee and similar components: 90 percent
Similar components:
Soils with less clay in the subsoil
Soils with less sand and more silt in the subsoil
Contrasting Components:
Chenango soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 5.8 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 28 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.3 to 3.5 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Fine-loamy glaciolacustrine deposits over stratified gravelly glaciofluvial deposits
Permeability: Moderate
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight
Distinctive soil property: Very gravelly layers

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

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

Woodland

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic Tank Absorption Fields

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

Local Roads and Streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

CaB—Cambridge silt loam, 2 to 6 percent slopes

Setting

Landform: End moraine; Ground moraine
Position on the landform: Knolls, summits, shoulders and backslopes
Size of areas: Up to about 335 acres

Map Unit Composition

Cambridge and similar components: 90 percent
Similar components:
Soils with a seasonal high water table from 8 to 16 inches
Soils without a fragipan
Soils formed in outwash parent material
Contrasting Components:
Venango soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 4.3 inches to a depth of 25 inches
Cation-exchange capacity of the surface layer: 7 to 16 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 20 to 30 inches
Depth to the top of the seasonal high water table: 1.3 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Coarse-loamy till
Permeability: Very slow or slow
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Very low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- Burning may destroy organic matter.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: F-3
Hydric soil: No

CaC—Cambridge silt loam, 6 to 12 percent slopes

Setting

Landform: End moraine; Ground moraine
Position on the landform: Backslopes, shoulders, summits and footslopes
Size of areas: Up to about 90 acres

Map Unit Composition

Cambridge and similar components: 85 percent
Similar components:
Soils formed in outwash parent material
Soils without a fragipan
Soils with an argillic horizon above the fragipan
Contrasting Components:
Venango soils: 9 percent
Darien soils: 6 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 3.8 inches to a depth of 21 inches
Cation-exchange capacity of the surface layer: 7 to 16 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 20 to 30 inches
Depth to the top of the seasonal high water table: 1.3 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Coarse-loamy till
Permeability: Very slow or slow
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: F-3
Hydric soil: No

CaD—Cambridge silt loam, 12 to 18 percent slopes

Setting

Landform: Ground moraine; End moraine
Position on the landform: Backslopes and footslopes
Size of areas: About 2 to 20 acres

Map Unit Composition

Cambridge and similar components: 92 percent
Similar components:
Soils without a fragipan
Soils with less silt and more clay above the fragipan
Contrasting Components:
Darien soils: 4 percent
Venango soils: 4 percent

Map Unit Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 4.6 inches to a depth of 25 inches
Cation-exchange capacity of the surface layer: 7 to 16 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 20 to 30 inches
Depth to the top of the seasonal high water table: 1.3 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Coarse-loamy till
Permeability: Very slow or slow
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The slope restricts the use of equipment for preparing this site for planting and seeding.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: F-3
Hydric soil: No

CcA—Canadice silt loam, 0 to 2 percent slopes

Setting

Landform: Valley floor
Position on the landform: Broad, concave flats and depressions on tread
Size of areas: Up to about 550 acres

Map Unit Composition

Canadice and similar components: 80 percent
Similar components:
Soils with less clay and more silt in the subsoil
Contrasting Components:
Caneadea soils: 20 percent

Map Unit Interpretive Groups

Land capability classification: 4w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 9.3 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 13 to 31 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: At or near the surface
Kind of water table: Apparent
Ponding: Brief (fig. 12)

Figure 12.—Beavers build dams that pond water in low areas such as this area of Canadice silt loam, 0 to 2 percent slopes. The ponded water kills the preexisting mesophytic vegetation.

Depth of ponding: 0.0 to 0.5 feet
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 11.0 percent
Parent material: Silty and clayey glaciolacustrine deposits
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Negligible
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- A combination of surface and subsurface drainage helps to remove excess water.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Ponding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Because of shrinking and swelling, this soil may not be suitable for use as a base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-2
Hydric soil: Yes

CdA—Caneadea silt loam, 0 to 2 percent slopes

Setting

Landform: Valley floor
Position on the landform: Planar or convex flat on tread
Size of areas: Up to about 130 acres

Map Unit Composition

Caneadea and similar components: 85 percent
Similar components:
Soils with less clay and more silt in the subsoil and substratum
Soils with a till substratum above 60 inches
Contrasting Components:
Canadice soils: 12 percent
Sebring soils: 3 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 8.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 14 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Silty and clayey glaciolacustrine deposits

Permeability: Very slow
Potential frost action: High
Shrink-swell potential: High
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight
Distinctive soil property: The thickness of the topsoil is thicker than is defined for the series. This difference, however, does not affect the use or management of the soils.

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- In some areas, the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-2
Hydric soil: No

CdB—Caneadea silt loam, 2 to 6 percent slopes

Setting

Landform: Valley floor
Position on the landform: Rises, summits and shoulders on tread
Size of areas: Up to about 205 acres

Map Unit Composition

Caneadea and similar components: 90 percent
Similar components:
Soils with less clay and more silt in the subsoil and substratum
Soils with a till substratum above 60 inches
Contrasting Components:
Canadice soils: 8 percent
Sebring soils: 2 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 7.6 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 14 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Silty and clayey glaciolacustrine deposits
Permeability: Very slow
Potential frost action: High

Shrink-swell potential: High
Surface layer texture: Silt loam
Potential for surface runoff: Very high
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

Pastureland

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-2
Hydric soil: No

CeA—Caneadea-Canadice silt loams, 0 to 2 percent slopes

Setting

Landform: Valley floor
Position on the landform:
Caneadea: Planar or convex flats on tread
Canadice: Broad, concave flat and depression on tread
Size of areas: About 25 to 1,425 acres

Map Unit Composition

Caneadea and similar components: 55 percent
Canadice and similar components: 40 percent
Similar components:
Soils with less clay and more silt in the subsoil and substratum
Soils with a till substratum above 60 inches
Contrasting Components:
Willette soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Caneadea
Available water capacity: About 8.3 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 14 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched

Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Silty and clayey glaciolacustrine deposits
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: High
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight
Distinctive soil property: The ph of caneadea soils is higher (neutral in the upper part of the argillic horizon) than is defined for the series. This difference, however, does not affect the use or management of the soils.

Canadice
Available water capacity: About 9.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 13 to 31 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: At or near the surface
Kind of water table: Apparent
Ponding: Brief
Depth of ponding: 0.0 to 0.5 feet
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 11.0 percent
Parent material: Silty and clayey glaciolacustrine deposits
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Negligible
Wind erosion hazard: Slight
Distinctive soil property: The ph of caneadea soils is higher (neutral in the upper part of the argillic horizon) than is defined for the series. This difference, however, does not affect the use or management of the soils.

Use and Management Considerations Affecting the Caneadea Soil

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Use and Management Considerations Affecting the Canadice Soil

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- A combination of surface and subsurface drainage helps to remove excess water.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.

- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Ponding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Caneadea
Pasture and hayland suitability group: C-2
Hydric soil: No

Canadice
Pasture and hayland suitability group: C-2
Hydric soil: Yes

CfC2—Cardinal silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Terrace
Position on the landform: Shoulders, backslopes and footslopes on riser
Size of areas: Up to about 20 acres

Map Unit Composition

Cardinal and similar components: 90 percent
Similar components:
Areas that are severely eroded
Contrasting Components:
Fitchville soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 8.7 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 19 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Silty and clayey glaciolacustrine deposits
Permeability: Slow
Potential frost action: High
Shrink-swell potential: High
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

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

- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of log trucks on this soil.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: A-6
Hydric soil: No

CfD2—Cardinal silt loam, 12 to 18 percent slopes, eroded

Setting

Landform: Terrace
Position on the landform: Backslopes and footslopes on risers
Size of areas: Up to about 40 acres

Map Unit Composition

Cardinal and similar components: 90 percent
Similar components:
Soils with less clay and more silt in the subsoil and substratum
Soils with a seasonal high water table starting at 24 to 42 inches
Contrasting Components:
Caneadea soils: 7 percent
Fitchville soils: 3 percent

Map Unit Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 8.8 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 19 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Silty and clayey glaciolacustrine deposits
Permeability: Slow
Potential frost action: High
Shrink-swell potential: High
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: A-6
Hydric soil: No

CfF—Cardinal silt loam, 18 to 50 percent slopes

Setting

Landform: Terrace
Position on the landform: Backslopes and footslopes on riser
Size of areas: Up to about 210 acres

Map Unit Composition

Cardinal and similar components: 88 percent
Similar components:
Soils that are well drained
Soils with less clay and more silt in the subsoil and substratum
Contrasting Components:
Well drained soils with less clay and more silt in the subsoil: 8 percent
Well drained soils with less clay and more sand in the subsoil: 4 percent

Map Unit Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 8.7 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 19 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 6.0 percent
Parent material: Silty and clayey glaciolacustrine deposits
Permeability: Slow
Potential frost action: High
Shrink-swell potential: High
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

Pastureland
- This soil is generally not recommended for pasture.

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.

- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of harvesting and mechanical planting equipment.
- Because of the slope, use of equipment to prepare this site for planting and seeding is not practical.
- Because of the slope, the use of mechanical planting equipment is not practical.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Severe shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures generally require special design and construction techniques or intensive maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- In some areas, the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: A-3
Hydric soil: No

CgA—Carlisle muck, 0 to 1 percent slopes

Setting

Landform: Ground moraine; Lake plain
Position on the landform: Depression
Size of areas: About 3 to 80 acres

Map Unit Composition

Carlisle and similar components: 90 percent
Similar components:
Soils with less than 51 inches of organic material near the edge of unit
Contrasting Components:
Willette soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 23.9 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 150 to 230 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: At or near the surface
Kind of water table: Apparent
Ponding: Very long
Depth of ponding: 0.0 to 2.0 feet
Drainage class: Very poorly drained
Flooding: None
Organic matter content in the surface layer: 70.0 to 99.0 percent
Parent material: Herbaceous and woody organic material
Permeability: Moderately slow to moderately rapid
Potential frost action: High
Shrink-swell potential: Not rated
Surface layer texture: Muck
Potential for surface runoff: Negligible
Wind erosion hazard: Severe
Distinctive soil property: Coprogenous earth commonly occurs in the lowest depths of the profile and is not defined for the series. This difference, however, does not affect the use or management of the soils.

Use and Management Considerations

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Ponding restricts the safe use of roads by log trucks.

- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

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

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

Local Roads and Streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Subsidence of the organic material reduces the bearing capacity of this soil.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Component Interpretive Groups

Pasture and hayland suitability group: D-1
Hydric soil: Yes

CkA—Chenango gravelly loam, 0 to 2 percent slopes

Setting

Landform: Outwash plain; Outwash terrace
Position on the landform: Convex flat on plain; tread on terrace
Size of areas: Up to about 150 acres

Map Unit Composition

Chenango and similar components: 93 percent
Similar components:
Soils with less gravel throughout the profile
Soils with a till substratum at less than 60 inches
Contrasting Components:
Harbor soils: 4 percent
Moderately well drained soils with a till substratum above 80 inches: 3 percent

Map Unit Interpretive Groups

Land capability classification: 2s
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 4.2 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 5 to 15 meq per 100 grams

Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Loamy and gravelly glaciofluvial deposits
Permeability: Moderate or moderately rapid
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Gravelly loam
Potential for surface runoff: Negligible
Wind erosion hazard: Slight
Distinctive soil property: Extremely gravelly layers

Use and Management Considerations

Cropland
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Stones restrict the use of equipment during site preparation for planting or seeding.

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

CkB—Chenango gravelly loam, 2 to 6 percent slopes

Setting

Landform: Outwash plain; Outwash terrace
Position on the landform: Summits, shoulders and backslopes on plain; tread on terrace
Size of areas: Up to about 135 acres

Map Unit Composition

Chenango and similar components: 90 percent
Similar components:
Soils with a till substratum at less than 60 inches
Soils with less gravel throughout the profile
Contrasting Components:
Harbor soils: 7 percent
Moderately well drained soils with less gravel and more clay: 3 percent

Map Unit Interpretive Groups

Land capability classification: 2s
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 5.7 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 5 to 15 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Loamy and gravelly glaciofluvial deposits
Permeability: Moderate or moderately rapid
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Gravelly loam
Potential for surface runoff: Low
Wind erosion hazard: Slight
Distinctive soil property: The thickness of the topsoil is thicker than is defined for the series. This difference, however, does not affect the use or management of the soils.

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Stones restrict the use of equipment during site preparation for planting or seeding.

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

CkC—Chenango gravelly loam, 6 to 12 percent slopes

Setting

Landform: Kame; Outwash terrace; Outwash plain
Position on the landform: Shoulders and backslopes on plain and kame; risers on terrace
Size of areas: Up to about 85 acres

Map Unit Composition

Chenango and similar components: 85 percent
Similar components:
Soils with a till substratum at less than 60 inches
Soils with less gravel throughout the profile
Contrasting Components:
Moderately well drained soils formed in till parent material: 9 percent
Moderately well drained soils with less gravel and more clay: 6 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 4.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 5 to 15 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Loamy and gravelly glaciofluvial deposits
Permeability: Moderate or moderately rapid
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Gravelly loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight
Distinctive soil property: Extremely gravelly layers

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

Pastureland

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

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Stones restrict the use of equipment during site preparation for planting or seeding.

Building Sites

- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields
- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

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

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

CkD—Chenango gravelly loam, 12 to 18 percent slopes

Setting

Landform: Kame; Outwash plain; Outwash terrace
Position on the landform: Backslopes and footslopes on plain and kame; risers on terrace
Size of areas: Up to about 30 acres

Map Unit Composition

Chenango and similar components: 88 percent
Similar components:
Soils with slightly more clay in the subsoil
Soils with less gravel throughout the profile
Soils on 18 to 25 percent slopes
Contrasting Components:
Moderately well drained soils with less gravel in the subsoil: 8 percent
Glenford soils: 4 percent

Map Unit Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 3.9 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 5 to 15 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Loamy and gravelly glaciofluvial deposits
Permeability: Moderate or moderately rapid
Potential frost action: Moderate

Shrink-swell potential: Low
Surface layer texture: Gravelly loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight
Distinctive soil property: Extremely gravelly layers

Use and Management Considerations

Cropland
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- The slope restricts the use of equipment for preparing this site for planting and seeding.
- Stones restrict the use of equipment during site preparation for planting or seeding.
- Burning may destroy organic matter.

Building Sites
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields
- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

Local Roads and Streets

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

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

CoB—Colonie loamy fine sand, 2 to 6 percent slopes

Setting

Landform: Dune on beach ridge on lake plain
Position on the landform: Backslopes, shoulders, summits, and footslopes
Size of areas: Up to about 235 acres

Map Unit Composition

Colonie and similar components: 86 percent
Similar components:
Soils with a silt plus clay content greater than 10 percent between 10 and 40 inches
Contrasting Components:
Otisville soils: 10 percent
Harbor soils: 4 percent

Map Unit Interpretive Groups

Land capability classification: 2s
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 4.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 1 to 10 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 2.0 percent
Parent material: Aeolian sands and sandy glaciolacustrine deposits
Permeability: Moderately rapid or rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Loamy fine sand
Potential for surface runoff: Very low
Wind erosion hazard: Severe
Distinctive soil property: Loamy sand is in the lower part of the C horizon, which is coarser than is defined for the series. This difference, however, does not affect the use or management of the soils.

Use and Management Considerations

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- A loss of soil productivity may occur following an episode of fire.

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

Local Roads and Streets
- This soil is well suited to use for local roads and streets.

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

CoD—Colonie loamy fine sand, 12 to 18 percent slopes

Setting

Landform: Dune on beach ridge on lake plain
Position on the landform: Summits, shoulders, backslopes, and footslopes
Size of areas: Up to about 65 acres

Map Unit Composition

Colonie and similar components: 95 percent

Similar components:
Soils with a silt plus clay content greater than 10 percent between 10 and 40 inches
Contrasting Components:
Chenango soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 4.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 1 to 10 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 2.0 percent
Parent material: Aeolian sands and sandy glaciolacustrine deposits
Permeability: Moderately rapid or rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Loamy fine sand
Potential for surface runoff: Low
Wind erosion hazard: Severe
Distinctive soil property: Sandy layers

Use and Management Considerations

Cropland
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- A loss of soil productivity may occur following an episode of fire.

Building Sites
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields
- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.

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

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

CpB—Colonie-Urban land complex, 2 to 6 percent slopes

Setting

Landform: Dune on beach ridge on lake plain
Position on the landform: Summits, shoulders, backslopes, and footslopes
Size of areas: About 10 to 385 acres

Map Unit Composition

Colonie and similar components: 60 percent
Urban land and similar components: 30 percent
Similar components:
Soils with a silt plus clay content greater than 10 percent between 10 and 40 inches
Contrasting Components:
Otisville soils: 7 percent
Harbor soils: 3 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Soil Properties and Qualities

Colonie
Available water capacity: About 4.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 1 to 10 meq per 100 grams

Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Somewhat excessively drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 2.0 percent
Parent material: Aeolian sands and sandy glaciolacustrine deposits
Permeability: Moderately rapid or rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Loamy fine sand
Potential for surface runoff: Very low
Wind erosion hazard: Severe
Distinctive soil property: Sandy layers in colonie soils

Definition of Urban land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Use and Management Considerations Affecting the Colonie Soil

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

Local Roads and Streets
- This soil is well suited to use for local roads and streets.

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Colonie
Pasture and hayland suitability group: Not rated
Hydric soil: No

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

CtA—Conneaut silt loam, 0 to 2 percent slopes

Setting

Landform: Lake plain
Position on the landform: Planar or convex flat
Size of areas: Up to about 3,815 acres

Map Unit Composition

Conneaut and similar components: 90 percent
Similar components:
Soils with less silt and more sand in the subsoil
Soils with a surface layer texture of silty clay loam
Contrasting Components:
Red Hook soils: 7 percent
Blakeslee soils: 3 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 10.0 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loess or fine-silty glaciolacustrine deposits over till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

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

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

CuA—Conneaut-Urban land complex, 0 to 2 percent slopes

Setting

Landform: Lake plain
Position on the landform: Planar or convex flat
Size of areas: About 10 to 765 acres

Map Unit Composition

Conneaut and similar components: 59 percent

Urban land and similar components: 35 percent
Similar components:
Soils with less silt and more sand in the subsoil
Soils with a surface layer texture of silty clay loam
Contrasting Components:
Red Hook soils: 4 percent
Blakeslee soils: 2 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Soil Properties and Qualities

Conneaut
Available water capacity: About 10.0 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Loess or fine-silty glaciolacustrine deposits over till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Definition of Urban land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Use and Management Considerations Affecting the Conneaut Soil

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Conneaut
Pasture and hayland suitability group: Not rated
Hydric soil: No

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

DAM—Dam

Setting

Landform: None assigned
Size of areas: About 0.5 to 3 acres

Map Unit Composition

Dam and similar components: 100 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Dam

An earthen barrier constructed across a valley to check the flow of a stream and create a small lake or reservoir.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

DeC—Darien and Platea silt loams, 6 to 12 percent slopes

Setting

Landform: Ground moraine; End moraine
Position on the landform: Summits, shoulders, and backslopes
Size of areas: Up to about 385 acres

Map Unit Composition

Darien and similar components: 75 percent
Platea and similar components: 20 percent
Similar components:
Soils with less clay and more silt in the subsoil
Contrasting Components:
Moderately well drained soils without a fragipan: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Darien
Available water capacity: About 8.1 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 26 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-loamy till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Platea
Available water capacity: About 3.7 inches to a depth of 18 inches
Cation-exchange capacity of the surface layer: 10 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 14 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-silty till
Permeability: Very slow

Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations Affecting the Darien Soil

Cropland
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

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

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

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

Use and Management Considerations Affecting the Platea Soil

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Darien
Pasture and hayland suitability group: C-1
Hydric soil: No

Platea
Pasture and hayland suitability group: C-2
Hydric soil: No

DeC2—Darien and Platea silt loams, 6 to 12 percent slopes, eroded

Setting

Landform: End moraine; Ground moraine
Position on the landform: Summits, shoulders, backslopes,
Size of areas: Up to about 155 acres

Map Unit Composition

Darien and similar components: 75 percent
Platea and similar components: 20 percent
Similar components:
Areas with slight erosion
Areas with severe erosion
Soils with less clay and more silt in the subsoil

Contrasting Components:
Moderately well drained soils without a fragipan: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Darien
Available water capacity: About 7.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 21 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.2 to 0.6 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Fine-loamy till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Platea
Available water capacity: About 3.7 inches to a depth of 18 inches
Cation-exchange capacity of the surface layer: 8 to 17 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 14 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Fine-silty till
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations Affecting the Darien Soil

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Erosion has removed part of the surface soil, and the remaining surface soil is less productive and more difficult to manage.

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

Pastureland
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

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

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

Use and Management Considerations Affecting the Platea Soil

Cropland

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

Pastureland

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Darien
Pasture and hayland suitability group: C-1
Hydric soil: No

Platea
Pasture and hayland suitability group: C-2
Hydric soil: No

DhB—Darien-Hornell silt loams, 2 to 6 percent slopes

Setting

Landform: End moraine; Ground moraine
Position on the landform: Summits, shoulders, and backslopes
Size of areas: Up to about 120 acres

Map Unit Composition

Darien and similar components: 48 percent
Hornell and similar components: 42 percent
Similar components:
Soils with bedrock within 60 to 80 inches similar to Darien soils
Soils with less clay in the subsoil similar to Hornell soils
Contrasting Components::
Mill soils: 5 percent
Soils with bedrock within 10 to 20 inches: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Darien
Available water capacity: About 7.9 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 26 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-loamy till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight

Hornell
Available water capacity: About 4.7 inches to a depth of 33 inches
Cation-exchange capacity of the surface layer: 12 to 27 meq per 100 grams
Depth class: Shallow and moderately deep
Depth to root restrictive feature: Bedrock (lithic): 20 to 40 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Silty and clayey till over acid shale or siltstone residuum
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations Affecting the Darien Soil

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland
- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Use and Management Considerations Affecting the Hornell Soil

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.

- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites
- The depth to bedrock and hardness of the bedrock greatly reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic Tank Absorption Fields
- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets
- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing roads.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Darien
Pasture and hayland suitability group: C-1
Hydric soil: No

Hornell
Pasture and hayland suitability group: C-1
Hydric soil: No

EnB—Elnora loamy fine sand, 1 to 5 percent slopes

Setting

Landform: Delta on lake plain; Longshore bar (relict) on lake plain; Beach ridge on lake plain
Position on the landform: Slight rise, summits, shoulders, and backslopes
Size of areas: Up to about 350 acres

Map Unit Composition

Elnora and similar components: 91 percent
Similar components:
Soils that are well drained
Soils with layers of very fine sandy loam to sand below 40 inches
Soils with layers having 15 to 60 percent gravel below 40 inches
Contrasting Components:
Red Hook soils: 6 percent
Soils with a silty substratum starting between 60 and 80 inches: 3 percent

Map Unit Interpretive Groups

Land capability classification: 2w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 3.8 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 3 to 11 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Apparent

Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Sandy aeolian, deltaic, and glaciolacustrine deposits
Permeability: Moderately rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Loamy fine sand
Potential for surface runoff: Very low
Wind erosion hazard: Severe
Distinctive soil property: Sandy layers

Use and Management Considerations

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Subsurface drainage helps to lower the seasonal high water table.
- The effectiveness of subsurface drains may be reduced because the drains can become filled with sand.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Soil wetness may limit the use of this soil by log trucks.
- Burning may destroy organic matter.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

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

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

Local Roads and Streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

FcA—Fitchville silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terrace
Position on the landform: Planar or convex flat on tread
Size of areas: Up to about 310 acres

Map Unit Composition

Fitchville and similar components: 92 percent
Similar components:
Soils that are moderately well drained
Soils with thin layers of coarser textured material
Soils with less silt and more clay in the subsoil
Contrasting Components:
Sebring soils: 7 percent
Canadice soils: 1 percent

Map Unit Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 10.2 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 14 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 5.0 percent
Parent material: Fine-silty glaciolacustrine deposits
Permeability: Moderately slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

FcB—Fitchville silt loam, 2 to 6 percent slopes

Setting

Landform: Stream terrace
Position on the landform: Slight rise, summits and shoulders on tread
Size of areas: Up to about 175 acres

Map Unit Composition

Fitchville and similar components: 95 percent
Similar components:
Soils that are moderately well drained
Soils with thin layers of coarser textured material
Soils with less silt and more clay in the subsoil
Contrasting Components:
Sebring soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 2e
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 10.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 14 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 5.0 percent
Parent material: Fine-silty glaciolacustrine deposits
Permeability: Moderately slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

GaF—Gageville silt loam, 18 to 50 percent slopes

Setting

Landform: End moraine; Ground moraine

Position on the landform: Footslopes and backslopes
Size of areas: Up to about 210 acres

Map Unit Composition

Gageville and similar components: 95 percent
Similar components:
Soils that are well drained
Soils with a seasonal high water table starting at 12 to 18 inches
Contrasting Components:
Well drained soils formed in glacio-fluvial parent material: 5 percent

Map Unit Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 10.1 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 6 to 15 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.3 to 3.5 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Fine-loamy till
Permeability: Slow
Potential frost action: Moderate
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Very high
Wind erosion hazard: Slight

Use and Management Considerations

Pastureland
- This soil is generally not recommended for pasture.

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

- The slope creates unsafe operating conditions and reduces the operating efficiency of harvesting and mechanical planting equipment.
- Because of the slope, use of equipment to prepare this site for planting and seeding is not practical.
- Because of the slope, the use of mechanical planting equipment is not practical.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: A-3
Hydric soil: No

GfA—Glenford silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terrace
Position on the landform: Convex flat on tread
Size of areas: Up to about 55 acres

Map Unit Composition

Glenford and similar components: 90 percent
Similar components:
Soils with thin layers of coarser textured material
Soils with a seasonal high water table starting below 24 inches

Contrasting Components:
Fitchville soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: 1
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 9.6 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 18 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Fine-silty glaciolacustrine deposits
Permeability: Moderately slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Systematic subsurface drainage will extend the period of planting and harvesting crops.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: A-6
Hydric soil: No

GfB—Glenford silt loam, 2 to 6 percent slopes

Setting

Landform: Stream terrace
Position on the landform: Slight rises, summits and shoulders on tread
Size of areas: Up to about 35 acres

Map Unit Composition

Glenford and similar components: 90 percent
Similar components:
Soils with a seasonal high water table starting below 24 inches
Soils with thin layers of coarser textured material
Contrasting Components:
Fitchville soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 9.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 18 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Fine-silty glaciolacustrine deposits
Permeability: Moderately slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: A-6
Hydric soil: No

GfC—Glenford silt loam, 6 to 12 percent slopes

Setting

Landform: Stream terrace
Position on the landform: Shoulders and backslope on riser
Size of areas: Up to about 15 acres

Map Unit Composition

Glenford and similar components: 95 percent
Similar components:
Soils with a seasonal high water table starting below 24 inches
Contrasting Components:
Fitchville soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 9.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 18 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet

Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Fine-silty glaciolacustrine deposits
Permeability: Moderately slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

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

Pastureland

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: A-6
Hydric soil: No

GfD—Glenford silt loam, 12 to 18 percent slopes

Setting

Landform: Stream terrace
Position on the landform: Backslopes and footslopes on riser
Size of areas: Up to about 10 acres

Map Unit Composition

Glenford and similar components: 100 percent
Similar components:
Soils with a seasonal high water table starting below 24 inches

Map Unit Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 9.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 18 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Apparent
Ponding: None

Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 5.0 percent
Parent material: Fine-silty glaciolacustrine deposits
Permeability: Moderately slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

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

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The slope restricts the use of equipment for preparing this site for planting and seeding.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

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

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

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: A-6
Hydric soil: No

HaA—Harbor fine sandy loam, 0 to 3 percent slopes

Setting

Landform: Longshore bar (relict) on lake plain; Beach ridge on lake plain; Delta on lake plain
Position on the landform: Convex flats, slight rises, knolls, summits and shoulders
Size of areas: Up to about 90 acres

Map Unit Composition

Harbor and similar components: 87 percent
Similar components:
Soils with depth to till between 40 and 60 inches
Soils with silty lacustrine sediments in the substratum
Soils with loamy fine sand or loam texture in the surface layer
Contrasting Components:
Painesville soils: 10 percent
Conneaut soils: 3 percent

Map Unit Interpretive Groups

Land capability classification: 2s
Prime farmland: All areas are prime farmland

Soil Properties and Qualities

Available water capacity: About 7.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 20 meq per 100 grams
Depth class: Very deep

Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Coarse-loamy glaciolacustrine deposits over till
Permeability: Slow
Potential frost action: Moderate
Shrink-swell potential: Moderate
Surface layer texture: Fine sandy loam
Potential for surface runoff: Very low
Wind erosion hazard: Moderate

Use and Management Considerations

Cropland
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland
- This soil is well suited to pasture.

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: A-1
Hydric soil: No

HaC—Harbor fine sandy loam, 6 to 12 percent slopes

Setting

Landform: Beach ridge on lake plain
Position on the landform: Footslopes, backslopes, shoulders
Size of areas: About 2 to 25 acres

Map Unit Composition

Harbor and similar components: 75 percent
Similar components:
Soils with a seasonal high water table starting at 12 to 18 inches
Contrasting Components:
Elnora soils: 11 percent
Painesville soils: 7 percent
Tyner soils: 7 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 7.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 20 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Coarse-loamy glaciolacustrine deposits over till
Permeability: Slow
Potential frost action: Moderate
Shrink-swell potential: Moderate
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low
Wind erosion hazard: Moderate

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: A-1
Hydric soil: No

HbB—Harbor-Urban land complex, 0 to 6 percent slopes

Setting

Landform: Beach ridge on lake plains; Delta on lake plains
Position on the landform: Convex flats, slight rises, knolls, summits and shoulders
Size of areas: About 2 to 885 acres

Map Unit Composition

Harbor and similar components: 61 percent
Urban land and similar components: 30 percent
Similar components:
Soils with loamy fine sand or loam texture in the surface layer
Soils with silty lacustrine sediments in the substratum
Soils with depth to till between 40 and 60 inches
Contrasting Components:
Painesville soils: 7 percent
Conneaut soils: 2 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Soil Properties and Qualities

Harbor
Available water capacity: About 7.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 20 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Coarse-loamy glaciolacustrine deposits over till
Permeability: Slow
Potential frost action: Moderate
Shrink-swell potential: Moderate
Surface layer texture: Fine sandy loam
Potential for surface runoff: Very low
Wind erosion hazard: Moderate

Definition of Urban Land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Use and Management Considerations Affecting the Harbor Soil

Building Sites
• The seasonal high water table may restrict the period when excavations can be

made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Harbor
Pasture and hayland suitability group: Not rated
Hydric soil: No

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

HmA—Holly silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains
Position on the landform: Flood plain steps
Size of areas: About 3 to 85 acres

Map Unit Composition

Holly and similar components: 85 percent
Similar components:
Soils with more than 25 percent rock fragments in the substratum
Contrasting Components:
Orrville soils: 10 percent
Wick soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Soil Properties and Qualities

Available water capacity: About 10.2 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 9 to 19 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.0 to 0.5 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 2.0 to 5.0 percent
Parent material: Fine-loamy alluvium
Permeability: Moderately slow or moderate
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Winter grain crops are commonly not grown because of frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland
- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.

- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of this soil by log trucks.
- Flooding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields
- This soil is generally unsuited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.
- Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Component Interpretive Groups

Pasture and hayland suitability group: C-3
Hydric soil: Yes

HoA—Hornell silt loam, 0 to 2 percent slopes

Setting

Landform: Till plain; Lake plain
Position on the landform: Planar or convex flats
Size of areas: Up to about 1,010 acres

Map Unit Composition

Hornell and similar components: 95 percent
Similar components:
Soils with less clay in the subsoil
Soils with bedrock starting at 40 to 60 inches
Contrasting Components:
Soils with bedrock starting at 10 to 20 inches: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 3.9 inches to a depth of 28 inches
Cation-exchange capacity of the surface layer: 12 to 27 meq per 100 grams
Depth class: Shallow and moderately deep
Depth to root restrictive feature: Bedrock (paralithic): 20 to 40 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Silty and clayey till over acid shale or siltstone residuum
Permeability: Very slow or slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

- Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

Pastureland

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.

- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The nature and depth of the soft bedrock in this soil reduces the ease of excavation and increases the difficulty in constructing foundations and installing utilities.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic Tank Absorption Fields
- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-2
Hydric soil: No

HoB—Hornell silt loam, 2 to 6 percent slopes

Setting

Landform: Lake plain; Till plain
Position on the landform: Slight rises, summits, shoulders and backslopes
Size of areas: Up to about 40 acres

Map Unit Composition

Hornell and similar components: 90 percent

Similar components:
Soils with bedrock starting at 40 to 60 inches
Soils with less clay in the subsoil
Contrasting Components:
Soils with bedrock starting at 10 to 20 inches: 10 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 4.4 inches to a depth of 31 inches
Cation-exchange capacity of the surface layer: 12 to 27 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Bedrock (paralithic): 20 to 40 inches ; Bedrock (lithic): 61 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Silty and clayey till over acid shale or siltstone residuum
Permeability: Very slow or slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- The rooting depth of crops may be restricted by the high clay content.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- Including deep-rooted cover crops in the rotation is important for improving soil structure and providing pathways in the clayey subsoil to facilitate the movement of water into subsurface drains.

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

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The stickiness of the soil reduces the efficiency of mechanical planting equipment.

Building Sites

- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.
- The nature and depth of the soft bedrock in this soil reduces the ease of excavation and increases the difficulty in constructing foundations and installing utilities.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

Septic Tank Absorption Fields

- The limited depth to bedrock reduces the filtering capacity of the soil and greatly increases the difficulty of proper installation of the effluent distribution lines.
- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

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

- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-2
Hydric soil: No

KfA—Kingsville loamy fine sand, 0 to 2 percent slopes

Setting

Landform: Delta on lake plain; Longshore bar (relict) on lake plain
Position on the landform: Concave flats and depressions
Size of areas: Up to about 205 acres

Map Unit Composition

Kingsville and similar components: 85 percent
Similar components:
Soils with gravelly layers more than 4 inches thick in the solum
Soils with a dark colored surface layer more than 9 inches thick
Contrasting Components:
Soils averaging more than 35 percent gravel in the subsoil and substratum: 15 percent

Map Unit Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 5.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 18 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: At or near the surface
Kind of water table: Apparent
Ponding: Brief
Depth of ponding: 0.0 to 2.0 feet
Drainage class: Very poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Sandy glaciolacustrine deposits
Permeability: Rapid
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Loamy fine sand
Potential for surface runoff: Negligible
Wind erosion hazard: Severe
Distinctive soil property: Sandy layers

Use and Management Considerations

Pastureland
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Soil wetness may limit the use of this soil by log trucks.
- Ponding restricts the safe use of roads by log trucks.
- Burning may destroy organic matter.

Building Sites
- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

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

Local Roads and Streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: Yes

La—Landfills

Setting

Landform: End moraine
Size of areas: About 105 acres

Map Unit Composition

Landfills and similar components: 95 percent
Contrasting Components:
Areas covered by overburden: 5 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Landfills

Landfills are areas where the natural soils are currently being disturbed by man's activities to dispose of solid wastes by burying and/or mounding.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

MhA—Mill silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraine; End moraine
Position on the landform: Broad, concave flats, depressions and swales
Size of areas: Up to about 14,225 acres

Map Unit Composition

Mill and similar components: 86 percent
Similar components:
Soils with less sand and more silt in the subsoil
Soils that are somewhat poorly drained
Contrasting Components:
Somewhat poorly drained soils with a fragipan: 7 percent
Poorly drained soils with a fragipan: 5 percent
Fitchville soils with a till substratum: 2 percent

Map Unit Interpretive Groups

Land capability classification: 4w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 8.3 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 15 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.0 to 0.5 feet
Kind of water table: Perched
Ponding: Brief
Depth of ponding: 0.0 to 0.5 feet
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 5.0 percent
Parent material: Fine-loamy till
Permeability: Slow

Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Negligible
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- A combination of surface and subsurface drainage helps to remove excess water.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Ponding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.

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

Local Roads and Streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: Yes

MtA—Mitiwanga silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraine
Position on the landform: Planar or convex flat
Size of areas: About 2 to 320 acres

Map Unit Composition

Mitiwanga and similar components: 84 percent
Similar components:
Soils with bedrock starting between 10 and 20 inches
Moderately well drained soils
Soils with bedrock starting between 40 and 60 inches
Contrasting Components:
Darien soils: 8 percent
Poorly drained soils with bedrock starting at 40 to 60 inches: 8 percent

Map Unit Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 4.9 inches to a depth of 30 inches
Cation-exchange capacity of the surface layer: 10 to 20 meq per 100 grams
Depth class: Shallow and moderately deep
Depth to root restrictive feature: Bedrock (lithic): 20 to 40 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Fine-loamy till over sandstone residuum
Permeability: Moderate
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Negligible

Wind erosion hazard: Slight

Use and Management Considerations

Cropland

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

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The depth to bedrock and hardness of the bedrock greatly reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic Tank Absorption Fields
- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets
- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing roads.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

MtB—Mitiwanga silt loam, 2 to 6 percent slopes

Setting

Landform: Ground moraine
Position on the landform: Slight rises, summits, shoulders and backslopes
Size of areas: Up to about 120 acres

Map Unit Composition

Mitiwanga and similar components: 80 percent
Similar components:
Moderately well drained soils
Soils with bedrock starting between 40 and 60 inches
Contrasting Components:
Well drained soils: 9 percent
Moderately well drained soils with bedrock starting at 40 to 60 inches on 2 to 12 percent slopes: 6 percent
Poorly drained soils with bedrock starting at 40 to 60 inches: 5 percent

Map Unit Interpretive Groups

Land capability classification: 2e
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 5.2 inches to a depth of 31 inches
Cation-exchange capacity of the surface layer: 10 to 20 meq per 100 grams
Depth class: Shallow and moderately deep
Depth to root restrictive feature: Bedrock (lithic): 20 to 40 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Fine-loamy till over sandstone residuum
Permeability: Moderate
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

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

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

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The depth to bedrock and hardness of the bedrock greatly reduce the ease of excavation and increase the difficulty in constructing foundations and installing utilities.
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

Septic Tank Absorption Fields
- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets

- The depth to bedrock and hardness of the bedrock reduce the ease of excavation and increase the difficulty of constructing roads.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

OrA—Orrville silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plain
Position on the landform: Flood plain steps
Size of areas: Up to about 115 acres

Map Unit Composition

Orrville and similar components: 85 percent
Similar components:
Soils with thin layers having more than 15 percent gravel
Contrasting Components:
Well drained soils with less than 18 percent clay in the subsoil: 9 percent
Holly soils: 6 percent

Map Unit Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Soil Properties and Qualities

Available water capacity: About 9.3 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 18 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Fine-loamy alluvium
Permeability: Moderate
Potential frost action: High
Shrink-swell potential: Low

Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Winter grain crops are commonly not grown because of frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland
- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of this soil by log trucks.
- Flooding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The frequent flooding in areas of this soil greatly increases the risk of damage associated with floodwaters. Because of the flooding, this soil is generally unsuited to building site development.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields
- This soil is generally unsuited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local Roads and Streets

- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Component Interpretive Groups

Pasture and hayland suitability group: C-3
Hydric soil: No

OtA—Otego silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plain
Position on the landform: Flood plain steps
Size of areas: Up to about 235 acres

Map Unit Composition

Otego and similar components: 95 percent
Similar components:
Soils with a seasonal high water table deeper than 24 inches
Soils with less silt and more clay in the subsoil
Soils with less silt and more sand in the subsoil
Contrasting Components:
Somewhat poorly drained soils with less silt and more clay in the subsoil: 5 percent

Map Unit Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season

Soil Properties and Qualities

Available water capacity: About 11.0 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 4 to 13 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.3 to 2.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: Frequent
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Coarse-silty alluvium
Permeability: Moderately slow or moderate
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam

Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Winter grain crops are commonly not grown because of frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of this soil by log trucks.
- Flooding restricts the safe use of roads by log trucks (fig. 13).
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

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

Septic Tank Absorption Fields
- This soil is generally unsuited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Component Interpretive Groups

Pasture and hayland suitability group: A-5
Hydric soil: No

Figure 13.—This young woodland on Otego silt loam, 0 to 2 percent slopes, frequently flooded is temporarily under floodwater in the spring.

OuC—Otisville gravelly sandy loam, 6 to 12 percent slopes

Setting

Landform: Beach ridge on lake plain
Position on the landform: Backslopes, shoulders, and footslopes
Size of areas: About 2 to 45 acres

Map Unit Composition

Otisville and similar components: 95 percent
Similar components:
Soils with layers having less sand and more gravel in the substratum
Contrasting Components:
Moderately well drained soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 4s
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 2.7 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 2 to 9 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None

Drainage class: Excessively drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Outwash reworked as gravelly beach deposits
Permeability: Rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Gravelly sandy loam
Potential for surface runoff: Very low
Wind erosion hazard: Moderate
Distinctive soil property: The topsoil is slightly thicker, the upper part of the subsoil is slightly finer in texture and slightly stronger in structure, and subhorizons of the C horizon have fewer rock fragments than is defined for the series. These differences, however, do not affect the use or management of the soils.

Use and Management Considerations

Cropland
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.

Building Sites
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

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

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

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

Component Interpretive Groups

Pasture and hayland suitability group: B-1
Hydric soil: No

PaA—Painesville fine sandy loam, 0 to 2 percent slopes

Setting

Landform: Lake plain
Position on the landform: Planar or convex flats
Size of areas: Up to about 1,040 acres

Map Unit Composition

Painesville and similar components: 82 percent
Similar components:
Soils with less sand and more silt in the subsoil
Moderately well drained soils
Soils with a loam or sandy loam texture in the surface layer
Contrasting Components:
Kingsville soils: 7 percent
Elnora soils: 4 percent
Darien soils: 2 percent
Poorly drained soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 8.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 3 to 15 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 5.0 percent
Parent material: Coarse-loamy glaciolacustrine deposits over till
Permeability: Slow or moderately slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low
Wind erosion hazard: Moderate

Use and Management Considerations

Cropland
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- The root system of winter grain crops may be damaged by frost action.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- Soil wetness may limit the use of this soil by log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

PbA—Painesville-Urban land complex, 0 to 2 percent slopes

Setting

Landform: Lake plain
Position on the landform: Planar or convex flats
Size of areas: About 15 to 120 acres

Map Unit Composition

Painesville and similar components: 47 percent
Urban land and similar components: 40 percent

Similar components:
Soils with less sand and more silt in the subsoil
Moderately well drained soils
Contrasting Components:
Kingsville soils: 5 percent
Elnora soils: 2 percent
Darien soils: 1 percent
Poorly drained soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Soil Properties and Qualities

Painesville
Available water capacity: About 8.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 3 to 15 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 5.0 percent
Parent material: Coarse-loamy glaciolacustrine deposits over till
Permeability: Slow or moderately slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Fine sandy loam
Potential for surface runoff: Low
Wind erosion hazard: Moderate

Definition of Urban Land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Use and Management Considerations Affecting the Painesville Soil

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Painesville
Pasture and hayland suitability group: Not rated
Hydric soil: No

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

PeC2—Pierpont silt loam, 6 to 12 percent slopes, eroded

Setting

Landform: Ground moraine; End moraine
Position on the landform: Footslopes, backslopes, and shoulders
Size of areas: Up to about 70 acres

Map Unit Composition

Pierpont and similar components: 75 percent
Similar components:
Soils with layers of outwash in the substratum
Soils with a seasonal high water table starting at 24 to 42 inches
Contrasting Components:
Soils without a fragipan that have less silt and more sand in the subsoil: 20 percent
Darien soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 3.8 inches to a depth of 24 inches
Cation-exchange capacity of the surface layer: 10 to 20 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 18 to 30 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent

Parent material: Fine-silty till
Permeability: Very slow or slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

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

Pastureland

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: F-3
Hydric soil: No

PeD—Pierpont silt loam, 12 to 18 percent slopes

Setting

Landform: End moraine; Ground moraine
Position on the landform: Shoulders, backslopes, and footslopes
Size of areas: Up to about 90 acres

Map Unit Composition

Pierpont and similar components: 75 percent
Similar components:
Soils with a seasonal high water table starting at 24 to 42 inches
Soils with more clay in the subsoil
Soils with less clay and more silt in the subsoil
Contrasting Components:
Soils without a fragipan that have less silt and more sand in the subsoil: 17 percent
Well drained soils without a fragipan that have more sand and gravel in the subsoil: 7 percent
Darien soils: 1 percent

Map Unit Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 4.1 inches to a depth of 25 inches
Cation-exchange capacity of the surface layer: 10 to 20 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 18 to 30 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 5.0 percent
Parent material: Fine-silty till
Permeability: Very slow or slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

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

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The slope restricts the use of equipment for preparing this site for planting and seeding.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: F-3
Hydric soil: No

Pg—Pits, gravel

Setting

Landform: Beach plain on lake plain; Beach ridge on lake plain; Outwash plain; Outwash terrace
Size of areas: Up to about 155 acres

Map Unit Composition

Pits, gravel and similar components: 100 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Pits, gravel

Open excavations from which soil, sand or gravel are being removed, exposing the underlying substratum material. Also includes closed pits that are not reclaimed, which could be re-opened in the future.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

Pk—Pits, quarry

Setting

Landform: Ground moraine
Size of areas: About 2 to 8 acres

Map Unit Composition

Pits, quarries and similar components: 100 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Pits, quarries

Open excavations from which soil and underlying sandstone has been removed; vertical high walls.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

PrA—Platea-Darien silt loams, 0 to 2 percent slopes

Setting

Landform: Ground moraine
Position on the landform: Darien: Planar or convex flat; Platea: Micro-high on flat
Size of areas: Up to about 190 acres

Map Unit Composition

Platea and similar components: 50 percent
Darien and similar components: 39 percent

Similar components:
Soils with less clay and more silt in the subsoil similar to Darien
Soils with clay accumulation in the horizon above the fragipan
Contrasting Components:
Mill soils: 6 percent
Moderately well drained soils without a fragipan that have less silt and more sand in the subsoil: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Platea
Available water capacity: About 4.2 inches to a depth of 21 inches
Cation-exchange capacity of the surface layer: 10 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 14 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-silty till
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight
Distinctive soil property: The BC horizon in these Darien soils has more than normal content of rock fragments, and the C horizon is slightly more acid than is defined for the series. These differences, however, do not affect the use or management of the soils.

Darien
Available water capacity: About 8.3 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 26 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-loamy till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Distinctive soil property: The BC horizon in these Darien soils has more than normal content of rock fragments, and the C horizon is slightly more acid than is defined for the series. These differences, however, do not affect the use or management of the soils.

Use and Management Considerations Affecting the Platea Soil

Cropland

- Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements (fig. 14).
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

Pastureland

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

Woodland

- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.

Figure 14.—Platea-Darien silt loams, 2 to 6 percent slopes is commonly cropped to general field crops of corn and soybeans.

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Use and Management Considerations Affecting the Darien Soil

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Component Interpretive Groups

Platea
Pasture and hayland suitability group: C-2
Hydric soil: No

Darien
Pasture and hayland suitability group: C-1
Hydric soil: No

PrB—Platea-Darien silt loams, 2 to 6 percent slopes

Setting

Landform: End moraine; Ground moraine
Position on the landform:
Darien: Summit, shoulder and backslope
Platea: Micro-high on summit
Size of areas: Up to about 1,735 acres

Map Unit Composition

Platea and similar components: 50 percent
Darien and similar components: 39 percent
Similar components:
Soils with less clay and more silt in the subsoil similar to Darien
Soils with clay accumulation in the horizon above the fragipan
Contrasting Components:
Moderately well drained soils without a fragipan that have less silt and more sand in the subsoil: 6 percent
Mill soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Platea
Available water capacity: About 3.3 inches to a depth of 16 inches
Cation-exchange capacity of the surface layer: 10 to 22 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 14 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-silty till
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Darien
Available water capacity: About 8.1 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 10 to 26 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-loamy till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight

Use and Management Considerations Affecting the Platea Soil

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.

- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.
- The rooting depth of crops is restricted by dense soil material.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Use and Management Considerations Affecting the Darien Soil

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

- The root system of winter grain crops may be damaged by frost action.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Component Interpretive Groups

Platea
Pasture and hayland suitability group: C-2
Hydric soil: No

Darien
Pasture and hayland suitability group: C-1
Hydric soil: No

PrB2—Platea-Darien silt loams, 2 to 6 percent slopes, eroded

Setting

Landform: End moraine; Ground moraine
Position on the landform:
Darien: Summits, shoulders and backslopes
Platea: Micro-high on summits
Size of areas: About 2 to 630 acres

Map Unit Composition

Platea and similar components: 50 percent
Darien and similar components: 35 percent
Similar components:
Soils with less clay and more silt in the subsoil similar to Darien
Soils with clay accumulation in the horizon above the fragipan
Contrasting Components:
Soils buried under eroded topsoil at the base of slopes: 8 percent
Eroded soils on 6 to 12 percent slopes: 7 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Platea
Available water capacity: About 3.3 inches to a depth of 16 inches
Cation-exchange capacity of the surface layer: 8 to 17 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 14 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Fine-silty till
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: High

Darien
Available water capacity: About 7.5 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 21 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.2 to 0.6 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained

Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Fine-loamy till
Permeability: Slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight
Wind erosion hazard: Slight

Use and Management Considerations Affecting the Platea Soil

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

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Use and Management Considerations Affecting the Darien Soil

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

Pastureland
- Avoiding overgrazing can reduce the hazard of erosion.
- Maintaining healthy plants and vegetative cover can reduce the hazard of erosion.
- Erosion control is needed when pastures are renovated.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.

- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Moderate shrinking and swelling of the soil may crack foundations and basement walls. Foundations and other structures may require some special design and construction techniques or maintenance.

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

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

Component Interpretive Groups

Platea
Pasture and hayland suitability group: C-2
Hydric soil: No

Darien
Pasture and hayland suitability group: C-1
Hydric soil: No

PtB—Platea-Urban land complex, 2 to 6 percent slopes

Setting

Landform: End moraine
Position on the landform: Summits, shoulders, and backslopes
Size of areas: About 2 to 115 acres

Map Unit Composition

Platea and similar components: 60 percent
Urban land and similar components: 30 percent
Similar components:
Soils with clay accumulation in the horizon above the fragipan
Contrasting Components:
Darien soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Soil Properties and Qualities

Platea
Available water capacity: About 3.3 inches to a depth of 16 inches
Cation-exchange capacity of the surface layer: 8 to 17 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 14 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
Parent material: Fine-silty till
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: High
Wind erosion hazard: Slight

Definition of Urban land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Use and Management Considerations Affecting the Platea Soil

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Platea
Pasture and hayland suitability group: Not rated
Hydric soil: No

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

PtC—Platea-Urban land complex, 6 to 12 percent slopes

Setting

Landform: End moraine
Position on the landform: Shoulders, backslope, and footslopes
Size of areas: About 35 to 70 acres

Map Unit Composition

Platea and similar components: 60 percent
Urban land and similar components: 30 percent
Similar components:
Soils with clay accumulation in the horizon above the fragipan
Contrasting Components:
Moderately well drained soils with no fragipan: 10 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Soil Properties and Qualities

Platea
Available water capacity: About 3.7 inches to a depth of 18 inches
Cation-exchange capacity of the surface layer: 8 to 17 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 14 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 1.0 to 3.0 percent
*Parent material:*Fine-silty till
Permeability: Very slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Very high
Wind erosion hazard: Slight

Definition of Urban land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Use and Management Considerations Affecting the Platea Soil

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

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

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Platea
Pasture and hayland suitability group: Not rated
Hydric soil: No

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

RhA—Red Hook silt loam, 0 to 2 percent slopes

Setting

Landform: Outwash terrace; Outwash plain
Position on the landform: Planar or convex flat on plain; tread on terrace
Size of areas: Up to about 240 acres

Map Unit Composition

Red Hook and similar components: 85 percent
Similar components:
Soils with less sand and more silt or clay in the subsoil
Soils with more than 35 percent rock fragments in the subsoil
Contrasting Components::
Poorly drained soils with more clay in the subsoil: 10 percent
Darien soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 6.3 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 7 to 17 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Coarse-loamy glaciofluvial deposits
Permeability: Moderately slow or moderate
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Negligible
Wind erosion hazard: Slight
Distinctive soil property: Very gravelly layers

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.

- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

RhB—Red Hook silt loam, 2 to 6 percent slopes

Setting

Landform: Outwash plain; Outwash terrace
Position on the landform: Rise on plain; tread on terrace
Size of areas: Up to about 185 acres

Map Unit Composition

Red Hook and similar components: 85 percent
Similar components:
Soils with more than 35 percent rock fragments in the subsoil
Soils with less sand and more silt or clay in the subsoil
Soils with less rock fragments in some part of the profile
Contrasting Components:
Poorly drained soils with more clay in the subsoil: 10 percent
Chenango soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 6.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 7 to 17 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 12.0 percent
Parent material: Coarse-loamy glaciofluvial deposits
Permeability: Moderately slow or moderate
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight
Distinctive soil property: Very gravelly layers

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

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

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

Rw—Riverwash

Setting

Landform: Drainageways on flood plains
Size of areas: Up to about 85 acres

Map Unit Composition

Riverwash and similar components: 90 percent
Contrasting Components:
Areas with large amounts of fine earth material between rocks: 10 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not prime farmland

Definition of Riverwash

Extremely cobbly or stony areas in the channels of major creeks and rivers that are frequently flooded, washed and reworked.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

SbA—Sebring silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terrace
Position on the landform: Broad, concave flats and depressions on tread
Size of areas: Up to about 1,055 acres

Map Unit Composition

Sebring and similar components: 78 percent
Similar components:
Soils that are slightly better drained
Contrasting Components:
Fitchville soils: 18 percent
Canadice soils: 2 percent
Caneadea soils: 2 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 9.7 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 15 to 27 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.0 to 0.5 feet
Kind of water table: Apparent
Ponding: Brief
Depth of ponding: 0.0 to 0.5 feet
Drainage class: Poorly drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 6.0 percent
Parent material: Fine-silty glaciolacustrine deposits
Permeability: Moderately slow
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Negligible
Wind erosion hazard: Slight
Distinctive soil property: This soil is a taxadjunct to the Sebring series due to having an insufficient amount of translocated clay in the subsoil to qualify as an argillic horizon. This difference, however, does not affect the use or management of the soils.

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- A combination of surface and subsurface drainage helps to remove excess water.

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.

- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Ponding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

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

Local Roads and Streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: Yes

StA—Stanhope silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plain
Position on the landform: Flood plain steps
Size of areas: Up to about 1,090 acres

Map Unit Composition

Stanhope and similar components: 98 percent
Similar components:
Soils with less silt and more sand in the subsoil
Wick soils
Contrasting Components:
Moderately well drained soils: 2 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Soil Properties and Qualities

Available water capacity: About 12.1 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 8 to 20 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 0.0 to 0.5 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 7.0 percent
Parent material: Fine-silty alluvium
Permeability: Moderately slow or moderate
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Winter grain crops are commonly not grown because of frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland
- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of this soil by log trucks.

- Flooding restricts the safe use of roads by log trucks.

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

Septic Tank Absorption Fields
- This soil is generally unsuited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.
- Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

Local Roads and Streets
- Because of shrinking and swelling, this soil may not be suitable for use as base material for local roads and streets.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Component Interpretive Groups

Pasture and hayland suitability group: C-3
Hydric soil: Yes

ToC—Towerville silt loam, 6 to 12 percent slopes

Setting

Landform: Ground moraine; End moraine
Position on the landform: Shoulders, backslopes, and footslope
Size of areas: Up to about 20 acres

Map Unit Composition

Towerville and similar components: 90 percent
Similar components:
Soils with a seasonal high water table deeper than 2 feet
Contrasting Components:
Hornell soils: 10 percent

Map Unit Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 4.9 inches to a depth of 34 inches
Cation-exchange capacity of the surface layer: 20 to 30 meq per 100 grams
Depth class: Shallow and moderately deep

Depth to root restrictive feature: Bedrock (paralithic): 20 to 40 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-loamy till over shale and siltstone residuum
Permeability: Slow or moderately slow
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight
Distinctive soil property: There are fewer rock fragments in the A and Bw1 horizons than is defined for the series. This difference, however, does not affect the use or management of the soils.

Use and Management Considerations

Cropland
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.

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

Woodland
- If the soil is disturbed, the slope increases the hazard of erosion.
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- Soil wetness may limit the use of this soil by log trucks.
- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

- The slope may restrict the use of some mechanical planting equipment.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. It is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The nature and depth of the soft bedrock in this soil reduces the ease of excavation and increases the difficulty in constructing foundations and installing utilities.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs may be required to ensure satisfactory performance.

Septic Tank Absorption Fields
- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines and seepage of poorly treated effluent is a concern.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: F-1
Hydric soil: No

ToD—Towerville silt loam, 12 to 18 percent slopes

Setting

Landform: End moraine; Ground moraine
Position on the landform: Shoulders, backslopes, and footslope
Size of areas: About 2 to 15 acres

Map Unit Composition

Towerville and similar components: 100 percent
Similar components:
Soils with a seasonal high water table deeper than 2 feet
Soils with bedrock within 40 to 60 inches

Map Unit Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 4.7 inches to a depth of 32 inches
Cation-exchange capacity of the surface layer: 20 to 30 meq per 100 grams
Depth class: Shallow and moderately deep
Depth to root restrictive feature: Bedrock (paralithic): 20 to 40 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 3.0 to 8.0 percent
Parent material: Fine-loamy till over shale and siltstone residuum
Permeability: Slow or moderately slow
Potential frost action: Moderate
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight

Use and Management Considerations

Cropland

- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- The movement of water into subsurface drains is restricted. Drainage guides can be used to determine tile spacing requirements.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland

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

Woodland

- If the soil is disturbed, the slope increases the hazard of erosion.
- The slope increases excavation costs, poses safety hazards, and creates a potential for erosion during construction of haul roads and log landings.
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Bedrock may interfere with the construction of haul roads and log landing sites.
- Soil wetness may limit the use of this soil by log trucks.

- The slope creates unsafe operating conditions and reduces the operating efficiency of log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The slope may restrict the use of some mechanical planting equipment.
- The slope restricts the use of equipment for preparing this site for planting and seeding.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- The slope influences the use of machinery and the amount of excavation required. Special building practices and designs are required to ensure satisfactory performance.
- The nature and depth of the soft bedrock in this soil reduces the ease of excavation and increases the difficulty in constructing foundations and installing utilities.

Septic Tank Absorption Fields
- Because of the limited depth to bedrock, this soil is generally unsuited to use as a site for septic tank absorption fields.
- The restricted permeability of this soil limits the absorption and proper treatment of the effluent from septic systems.
- Because of the slope, special design and installation techniques are needed for the effluent distribution lines.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- Special design of roads and streets is needed to prevent the structural damage caused by low soil strength.
- Because of the slope, designing local roads and streets is difficult.

Component Interpretive Groups

Pasture and hayland suitability group: F-1
Hydric soil: No

TyB—Tyner-Otisville complex, 2 to 6 percent slopes

Setting

Landform: Longshore bar (relict) on lake plain; Beach plain on lake plain; Beach ridge on lake plain
Position on the landform: Shoulders, backslopes, footslopes, and summits
Size of areas: Up to about 945 acres

Map Unit Composition

Tyner and similar components: 46 percent
Otisville and similar components: 31 percent

Similar components:
Soils with less silt and more sand in the subsoil similar to Tyner
Soils with less rock fragments in the subsoil similar to Otisville
Contrasting Components:
Chenango soils: 14 percent
Well drained soils with 10 to 18 percent clay in the subsoil: 9 percent

Map Unit Interpretive Groups

Land capability classification: 3s
Prime farmland: Not prime farmland

Soil Properties and Qualities

Tyner
Available water capacity: About 5.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 1 to 6 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Excessively drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 1.0 percent
Parent material: Beach deposits or sandy outwash
Permeability: Rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Loamy sand
Potential for surface runoff: Negligible
Wind erosion hazard: Severe

Otisville
Available water capacity: About 2.8 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 2 to 9 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Excessively drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Outwash reworked as gravelly beach deposits
Permeability: Rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Very gravelly sandy loam
Potential for surface runoff: Negligible
Wind erosion hazard: Moderate
Distinctive soil property: The upper part of the subsoil in the Otisville soils is slightly finer in texture and has slightly stronger structure than is defined for the series. These differences, however, do not affect the use or management of the soils.

Use and Management Considerations Affecting the Tyner Soil

Cropland
- Grassed waterways can be used in some areas to slow and direct the movement of water and reduce erosion.
- Using a system of conservation tillage and planting cover crops reduce the runoff rate and help to minimize soil loss by erosion.
- Maintaining vegetative cover and establishing windbreaks reduce the hazard of wind erosion.
- Incorporating crop residue or other organic matter into the surface layer increases the capacity of the soil to hold and retain moisture. Plants may suffer from moisture stress because of the limited available water capacity.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Maintaining or increasing the content of organic matter in the soil helps to prevent crusting, improves tilth, and increases the rate of water infiltration.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- A loss of soil productivity may occur following an episode of fire.

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

Local Roads and Streets
- This soil is well suited to use for local roads and streets.

Use and Management Considerations Affecting the Otisville Soil

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

- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Plant nutrients are leached at an accelerated rate because of the sandy layer.

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

Woodland
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The slope may restrict the use of some mechanical planting equipment.
- Rock fragments obstruct the use of mechanical planting equipment.
- Stones restrict the use of equipment during site preparation for planting or seeding.

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

Local Roads and Streets
- This soil is well suited to use for local roads and streets.

Component Interpretive Groups

Tyner
Pasture and hayland suitability group: B-1
Hydric soil: No

Otisville
Pasture and hayland suitability group: B-1
Hydric soil: No

Ud—Udorthents

Setting

Landform: Lake plain; Till plain
Size of areas: Up to about 1,910 acres

Map Unit Composition

Udorthents and similar components: 90 percent
Contrasting Components:
Overburden and mined materials not removed from the site: 10 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Udorthents

The landscape has been altered by construction activities, major highway right-of-ways, borrow pits, or areas of commercial development, resulting in random soil mixing. Also included are rail yards in rural areas, and landfills and gravel pits that have been reclaimed and are closed.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

Un—Urban land

Setting

Landform: Lake plain; Till plain
Size of areas: About 7 to 185 acres

Map Unit Composition

Urban land and similar components: 90 percent
Contrasting Components:
Areas of natural undisturbed soil material: 10 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Urban land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

UrB—Urban land-Elnora complex, 1 to 5 percent slopes

Setting

Landform: Beach ridge on lake plain; Delta on lake plain
Position on the landform: Slight rises, summits, shoulders and backslopes
Size of areas: About 6 to 645 acres

Map Unit Composition

Urban land and similar components: 70 percent
Elnora and similar components: 27 percent
Similar components:
Soils that are well drained
Soils with layers having 15 to 60 percent gravel below 40 inches
Soils with layers of very fine sandy loam to sand below 40 inches
Contrasting Components:
Red Hook soils: 2 percent
Soils with a silty substratum starting between 60 and 80 inches: 1 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Urban land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Soil Properties and Qualities

Elnora
Available water capacity: About 3.8 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 3 to 11 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: 1.0 to 2.0 feet
Kind of water table: Apparent
Ponding: None
Drainage class: Moderately well drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 6.0 percent
Parent material: Sandy aeolian, deltaic, and glaciolacustrine deposits
Permeability: Moderately rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Loamy fine sand
Potential for surface runoff: Very low
Wind erosion hazard: Severe
Distinctive soil property: Sandy layers in elnora soils

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Use and Management Considerations Affecting the Elnora Soil

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.

Septic Tank Absorption Fields
- The excessive permeability limits the proper treatment of the effluent from septic systems in areas of this soil. The poorly treated effluent may pollute the water table in the area of the absorption field.
- The seasonal high water table in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Costly measures may be needed to lower the water table in the area of the absorption field.

Local Roads and Streets
- The seasonal high water table affects the ease of excavation and grading and reduces the bearing capacity of this soil.

Component Interpretive Groups

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

Elnora
Pasture and hayland suitability group: Not rated
Hydric soil: No

UtB—Urban land-Tyner-Otisville complex, 2 to 6 percent slopes

Setting

Landform: Beach ridge on lake plain; Beach plain on lake plain
Position on the landform: Summits, shoulders, backslopes, and footslopes
Size of areas: About 5 to 315 acres

Map Unit Composition

Urban land and similar components: 45 percent
Tyner and similar components: 25 percent
Otisville and similar components: 17 percent
Similar components:
Soils with less rock fragments in the subsoil similar to Otisville
Soils with less silt and more sand in the subsoil similar to Tyner
Contrasting Components:
Chenango soils: 8 percent
Well drained soils with 10 to 18 percent clay in the subsoil: 5 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not rated

Definition of Urban land

Urban land is a miscellaneous area where the original soils have been removed or altered during excavation and construction activities, often resulting in random soil mixing. The soil surface is largely covered by streets, structures and other engineered installations. Generally the infiltration of precipitation on urban land is very limited.

Soil Properties and Qualities

Tyner
Available water capacity: About 5.4 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 1 to 6 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Excessively drained
Flooding: None
Organic matter content in the surface layer: 0.5 to 1.0 percent
Parent material: Glaciolacustrine beach deposits or sandy outwash
Permeability: Rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Loamy sand
Potential for surface runoff: Negligible
Wind erosion hazard: Severe

Otisville
Available water capacity: About 2.8 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 2 to 9 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: Greater than 6 feet
Ponding: None
Drainage class: Excessively drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Gravelly glaciolacustrine beach deposits or outwash
Permeability: Rapid
Potential frost action: Low
Shrink-swell potential: Low
Surface layer texture: Very gravelly sandy loam
Potential for surface runoff: Negligible
Wind erosion hazard: Moderate
Distinctive soil property: The upper part of the subsoil in the Otisville soils is slightly finer in texture and has slightly stronger structure than is defined for the series. These differences, however, do not affect the use or management of the soils.

Use and Management Considerations Affecting Urban land

Onsite investigation is needed to determine the suitability for specific uses.

Use and Management Considerations Affecting the Tyner Soil

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

Local Roads and Streets
- This soil is well suited to use for local roads and streets.

Use and Management Considerations Affecting the Otisville Soil

Building Sites
- Because of the high content of sand or gravel in the soil, the resistance to sloughing is reduced in shallow excavations and cutbanks are susceptible to caving.
- This soil is well suited to use as building sites.

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

Local Roads and Streets
- This soil is well suited to use for local roads and streets.

Component Interpretive Groups

Urban land
Pasture and hayland suitability group: Not rated
Hydric soil: Unranked

Tyner
Pasture and hayland suitability group: Not rated
Hydric soil: No

Otisville
Pasture and hayland suitability group: Not rated
Hydric soil: No

VeA—Venango silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraine
Position on the landform: Planar or convex flat
Size of areas: Up to about 55 acres

Map Unit Composition

Venango and similar components: 85 percent

Similar components:
Soils with less sand and more silt above the fragipan
Contrasting Components:
Darien soils: 10 percent
Mill soils: 5 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 3.8 inches to a depth of 21 inches
Cation-exchange capacity of the surface layer: 10 to 20 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 18 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Fine-loamy till
Permeability: Very slow or slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Low
Wind erosion hazard: Slight
Distinctive soil property: Field examinations indicate that the fragipan development is generally weaker and considerably more erratic than in the Cambridge soils.

Use and Management Considerations

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

Pastureland
- Plants may suffer moisture stress during the drier summer months because of the limited available water capacity.
- Using a system of conservation tillage when pastures are renovated conserves soil moisture.
- This soil provides poor summer pasture.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.

- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

VeB—Venango silt loam, 2 to 6 percent slopes

Setting

Landform: Ground moraine; End moraine
Position on the landform: Summits, shoulders, and backslopes
Size of areas: Up to about 420 acres

Map Unit Composition

Venango and similar components: 90 percent
Contrasting Components:
Darien soils: 5 percent
Cambridge soils: 4 percent
Red Hook soils: 1 percent

Map Unit Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained

Soil Properties and Qualities

Available water capacity: About 4.0 inches to a depth of 22 inches
Cation-exchange capacity of the surface layer: 10 to 20 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Fragipan: 18 to 26 inches
Depth to the top of the seasonal high water table: 0.5 to 1.0 feet
Kind of water table: Perched
Ponding: None
Drainage class: Somewhat poorly drained
Flooding: None
Organic matter content in the surface layer: 2.0 to 4.0 percent
Parent material: Fine-loamy till
Permeability: Very slow or slow
Potential frost action: High
Shrink-swell potential: Low
Surface layer texture: Silt loam
Potential for surface runoff: Medium
Wind erosion hazard: Slight
Distinctive soil property: Field examinations indicate that the fragipan development is generally weaker and considerably more erratic than in the Cambridge soils.

Use and Management Considerations

Cropland

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

Pastureland

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

- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

Building Sites
- The seasonal high water table may restrict the period when excavations can be made and may require a higher degree of construction site development and building maintenance. This soil is poorly suited to building site development and structures may need special design to avoid damage from wetness.

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

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

Component Interpretive Groups

Pasture and hayland suitability group: C-1
Hydric soil: No

W—Water

Setting

Landform: None assigned
Size of areas: Up to about 3,250 acres

Map Unit Composition

Water and similar components: 100 percent

Map Unit Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not prime farmland

Definition of Water

Water includes creeks, rivers, lakes, and ponds that are covered with water in most

years at least during the period warm enough for plants to grow; most areas are covered throughout the year.

Use and Management Considerations

Onsite investigation is needed to determine the suitability for specific uses.

Component Interpretive Groups

Pasture and hayland suitability group: Not rated
Hydric soil: No

WcA—Wick silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plain
Position on the landform: Flood plain steps
Size of areas: Up to about 1,360 acres

Map Unit Composition

Wick and similar components: 89 percent
Similar components:
Soils with less silt and more sand in the subsoil
Contrasting Components:
Somewhat poorly drained soils: 5 percent
Willette soils: 4 percent
Carlisle soils: 2 percent

Map Unit Interpretive Groups

Land capability classification: 4w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Soil Properties and Qualities

Available water capacity: About 10.2 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 9 to 23 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: At or near the surface
Kind of water table: Apparent
Ponding: None
Drainage class: Very poorly drained
Flooding: Frequent
Organic matter content in the surface layer: 3.0 to 8.5 percent
Parent material: Fine-silty alluvium
Permeability: Moderately slow or moderate
Potential frost action: High
Shrink-swell potential: Moderate
Surface layer texture: Silt loam
Potential for surface runoff: Negligible
Wind erosion hazard: Slight

Use and Management Considerations

Cropland
- The root system of winter grain crops may be damaged by frost action.
- Careful selection and application of chemicals and fertilizers help to minimize the possibility of groundwater contamination.
- Controlling traffic can minimize soil compaction.
- Winter grain crops are commonly not grown because of frequent flooding.
- Measures that protect the soil from scouring and minimize the loss of crop residue by floodwaters are needed.
- Subsurface drainage helps to lower the seasonal high water table.

Pastureland
- Forage production can be improved by seeding grass-legume mixtures that are tolerant of flooding.
- Sediment left on forage plants after a flood event may reduce palatability and forage intake by the grazing animal.
- Excess water should be removed, or grass or legume species that are adapted to wet soil conditions should be planted.
- The root systems of plants may be damaged by frost action.
- Restricting grazing during wet periods can minimize compaction.

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Flooding may result in damage to haul roads and increased maintenance costs.
- Soil wetness may limit the use of this soil by log trucks.
- Flooding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.

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

Septic Tank Absorption Fields
- This soil is generally unsuited to septic tank absorption fields. The flooding in areas of this soil greatly limits the absorption and proper treatment of the effluent from septic systems. Rapidly moving floodwaters may damage some components of septic systems.
- Because of the seasonal high water table, this soil is generally unsuited to use as a site for septic tank absorption fields.

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

- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.
- Special design of roads and bridges is needed to prevent the damage caused by flooding.

Component Interpretive Groups

Pasture and hayland suitability group: C-3
Hydric soil: Yes

WeA—Willette muck, 0 to 1 percent slopes

Setting

Landform: Till plain; Lake plain
Position on the landform: Depression
Size of areas: About 2 to 80 acres

Map Unit Composition

Willette and similar components: 85 percent
Similar components:
Soils with an organic layer less than 19 inches thick
Contrasting Components:
Organic soils underlain by coarser textured mineral layers: 15 percent

Map Unit Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland

Soil Properties and Qualities

Available water capacity: About 14.1 inches to a depth of 60 inches
Cation-exchange capacity of the surface layer: 120 to 180 meq per 100 grams
Depth class: Very deep
Depth to root restrictive feature: Greater than 80 inches
Depth to the top of the seasonal high water table: At or near the surface
Kind of water table: Apparent
Ponding: Very long
Depth of ponding: 0.0 to 2.0 feet
Drainage class: Very poorly drained
Flooding: None
Organic matter content in the surface layer: 60.0 to 99.0 percent
Parent material: Herbaceous organic material over silty and clayey glaciolacustrine deposits
Permeability: Slow
Potential frost action: High
Shrink-swell potential: High
Surface layer texture: Muck
Potential for surface runoff: Negligible
Wind erosion hazard: Severe
Distinctive soil property: Layers of organic material

Use and Management Considerations

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

Woodland
- A seasonal high water table can inhibit the growth of some species of seedlings by reducing root respiration.
- Standing water can inhibit the growth of some species of seedlings by restricting root respiration.
- The low strength of the soil may cause the formation of ruts, which can result in unsafe conditions and damage to equipment.
- The low strength of the soil increases the cost of constructing haul roads and log landings.
- Sandy layers in this soil increase the maintenance of haul roads and log landings.
- Soil wetness may limit the use of this soil by log trucks.
- Ponding restricts the safe use of roads by log trucks.
- Because of low soil strength, harvesting equipment may be difficult to operate and damage may result. The low strength of the soil may create unsafe conditions for log trucks.
- The sandiness of the soil may reduce the traction of wheeled harvest equipment and log trucks.
- Sandy layers may slough, thus reducing the efficiency of mechanical planting equipment.

Building Sites
- When drained, the organic layers in this soil subside. Subsidence leads to differential rates of settlement which may cause foundations to break. Because of the high potential for subsidence, this soil is generally unsuited to building site development.
- Because water tends to pond on this soil, the period when excavations can be made may be restricted and intensive construction site development and building maintenance may be needed. The soil is generally unsuited to building site development.
- In some areas the high content of clay in the subsurface layer increases the difficulty of digging, filling, and compacting the soil material in shallow excavations.

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

Local Roads and Streets
- Ponding affects the ease of excavation and grading and limits the bearing capacity of this soil.
- Subsidence of the organic material reduces the bearing capacity of this soil.
- Local roads and streets may be damaged by frost action, which is caused by the freezing and thawing of soil moisture.
- The low bearing strength of this soil is generally unfavorable for supporting heavy loads. Special design of local roads and streets is needed to prevent the structural damage caused by low soil strength.

Component Interpretive Groups

Pasture and hayland suitability group: D-1
Hydric soil: Yes

Important Farmland

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 (fig. 15).

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, woodland, 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, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods,

Figure 15.—Mill silt loam, 0 to 2 percent slopes in the cultivated field is prime farmland if the soil is drained.

and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 233,000 acres in the county, or about 51 percent of the total acreage in the county, meets the soils requirements for prime farmland as defined by the Natural Resources Conservation Service.

Most of the prime farmland in the county is used as cropland. Urbanization in and around cities and along interstate corridors account for the majority of prime farmland lost to agricultural uses.

A recent trend in land use in some parts of Ashtabula County has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in Ashtabula County that are considered prime farmland are listed in table 5 (Prime Farmland) and in the section “Interpretive Groups”. These lists do not constitute a recommendation for a particular land use. On some soils included in the lists, 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-Acreage and Proportionate Extent of the Map Units. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Unique Farmland

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil qualities, location, growing season, and moisture supply needed for the economic production of sustained high yields of a specific high- quality crop when treated and managed by acceptable farming methods. Examples of such crops are tree fruits, berries, and vegetables.

Unique farmland has an adequate supply of available moisture for the specific crops for which it is used because of stored moisture, precipitation, or irrigation and has a combination of soil qualities, growing season, temperature, humidity, air drainage, elevation, aspect, and other factors, such as nearness to markets, that favors the production of a specific food or fiber crop.

Lists of unique farmland are developed as needed in cooperation with conservation districts and others.

Additional Farmland of Statewide Importance

Some areas other than areas of prime farmland and unique farmland are of statewide importance in the production of food, feed, fiber, forage, and oilseed crops. The criteria used in defining and delineating these areas are determined by the appropriate state agency or agencies. Generally, additional farmland of statewide importance includes areas that nearly meet the criteria for prime farmland and that economically produce high yields of crops when treated and managed by acceptable farming methods. Some areas can produce as high a yield as areas of prime farmland if conditions are favorable. In some states additional farmland of statewide importance may include tracts of land that have been designated for agriculture by state law.

Additional Farmland of Local Importance

This land consists of areas that are of local importance in the production of food, feed, fiber, forage, and oilseed crops and are not identified as having national or statewide importance. Where appropriate, this land is identified by local agencies. It may include tracts of land that have been designated for agriculture by local ordinance.

Lists of this land are developed as needed in cooperation with conservation districts and others.

Hydric Soils

In this section, hydric soils are defined and described. The hydric soils in Ashtabula County are listed in table 6 (Hydric Soils). The nonhydric soils with hydric components are listed in table 7 (Nonhydric Map Units with Hydric Components) (fig. 16).

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). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil

Figure 16.—The hydric soils components in nonhydric map units, such as this Fitchville silt loam, 0 to 2 percent slopes, may be generally identified by ponding of water in the lowest depressions and swales in early spring.

properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 1998) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in Ashtabula County are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The map units in table 6 meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1998).

Map units that are dominantly hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The map units listed in table 7 (Nonhydric Map Units with Hydric Components), do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A minor portion of these map units, however, may be hydric soils. Onsite investigation is necessary to determine whether or not hydric soils occur and if so the location and extent of the included hydric soils.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in Ashtabula County. 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 (fig. 17); as woodland; 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 Ashtabula County for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations

Figure 17.—The soil survey provides information necessary to plan the optimum use and management of soils such as this Venango silt loam, 2 to 6 percent slopes being cropped to soybeans.

appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

Al Bonnis, District Conservationist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The yield index of the main crops are listed in the Crop Yield Index table and the system of land capability classification used by the Natural Resources Conservation Service is explained.

In 2000, 75,200 acres of cropland planted to corn for grain, soybeans, wheat and hay were harvested, which is about 17 percent of the total acreage in the county. Harvested cropland is fairly evenly divided between grain crops and hay.

Many soil attributes and management factors influence crop productivity and therefore are important to optimum planning and management for efficiency. It is important to recognize and minimize soil related limitations for cropping. The main limitations of the soils in Ashtabula County for crop production include wetness, erosion, steepness, low fertility, and droughtiness. Many soils have more than one limitation for crops and pasture management.

Soil wetness is the major land use limitation for farmers in the county. Poorly drained soils such as Sebring and Mill are so naturally wet that field crops could not be grown in most years without drainage improvements.

Somewhat poorly drained soils, such as Darien and Fitchville are wet enough in most years so that crops would suffer stress and yield reduction due to excessive wetness. Planting and harvesting would often be delayed without drainage improvements.

Ditches are used to drain surface water and as outlets for subsurface drainage systems. Drainage improvement is difficult in areas where natural outlets are not

available. Pump drainage is an alternative in areas where gravity outlets can not be obtained. Soil permeability affects the functioning of subsurface tile lines and the recommended spacings for the map units of this survey. Generally, the less permeable soils require closer spacing of tile lines. The presence of a fragipan in the subsoil limits the depths at which subsurface tile lines should be installed.

Water erosion of soils can be severe on sloping soils if crops are grown without proper application of conservation practices. Surface texture, vegetation, management practices, steepness of slope, and length of slope, influence soil erosion risks.

On-site detrimental effects of soil erosion include: 1)loss of the organic enriched topsoil with its soil nutrients, i.e. fertility, 2)thinning of the original topsoil so that subsoil is progressively incorporated into the plow layer, 3)the soils become more droughty as their water holding capacities decrease, 4)reduces soil infiltration rates of water and increases water runoff.

Off-site detrimental effects of erosion include: 1)soil particles become non-point water pollutants, 2)soil sediments fill ditches, bury vegetation, and plug engineered structures such as pipes.

Plant residue left on the surface reduces rain drop impact, slows runoff, and increases infiltration rates. No-till and minimum till farming practices are designed to retard soil erosion. Minimum till practices require at least 30 percent of the soil surface be covered with residue to protect the soil from excessive erosion. Engineered practices can be installed also to help minimize water erosion. Specific information concerning the design of erosion control measures can be obtained from the county office of the Soil and Water Conservation District.

Soil tilth refers to the physical condition of friability and structure. Crop production potentials are directly related to soil tilth. Tilth affects water infiltration rates and seedling emergence.

Soils with a high percentage of clay in the plow layer have a narrow range of ideal moisture content for tilling and become cloddy if tilled when wet. After an intense rain, loam, silt loam, and silty clay loam textured surfaces with low organic content often crust when dry, limiting seedling emergence and water infiltration rates.

Soil tilth of the plow layer is deteriorated as topsoil erodes and subsoil is incorporated into the plow layer. Tilth can be improved by controlling erosion and incorporating manure, crop residue, or other organic matter into the plow layer. Nearly level fields that have high clay content surfaces can be fall plowed so that frost and thaw cycles over winter improve tilth for spring planting.

Soil amendments can increase yields substantially. Soil tests are needed to determine the proper amount of lime and fertilizer required for efficient crop production. Soils in the county vary widely in pH values in the plow layer but are generally acidic. Applications of lime will raise pH values. Higher levels of aluminum in the subsoil of some soils increase the amount of lime needed to raise pH values. Soil fertility is naturally low in the sandier textured soils.

The county has sufficient dairy operations to rank as the 9th highest county in Ohio for number of milk cows. Livestock farms, particularly dairy farms, have manure as a byproduct that can be utilized as a nutrient and organic matter resource to be recycled into soil as an amendment. Dairy farmers commonly pasture livestock and plant hay crops in the crop rotation. This is beneficial for overall quality improvement to the soil resource. Common hay seedings are trefoil and timothy, alfalfa and timothy, red clover, ladino clover, and orchardgrass.

Soil related concerns for pasture management include wetness, erosion, and compaction. Damage due to compaction is a hazard with most soils if the pasture is grazed when wet. Soils with low available water capacities are droughty during drier periods of the year. Overgrazing on sloping ground will promote soil erosion. Pasture

renovation using no-till equipment to seed grasses and legumes is needed in some areas. Lime and fertilizer should be applied according to soil test recommendations.

Flood plain soils are sometimes pastured. Flooding is not as detrimental to pasture crops as to field crops. Fencing along stream banks and watering livestock with installed facilities reduce stream bank erosion and improve stream water quality. Some woodlots are used for pasture; however, forage usually is sparse and of low quality. Some woodland plants can be toxic to livestock and livestock activity reduces timber quality.

Specialty crops account for about 17 percent of agricultural income in the county. They require more intensive management than row crops but have a much higher return per acre. The moderating affect of Lake Erie on northern Ashtabula County is one of the most important reasons for the success of specialty crops. Freezing weather is delayed in the fall while cooler winds in the spring delay bud break, lessoning the chance of early frost damage. With the variety of soil types, specialty crop growers can farm soils suited to their management plans.

Orchard crops grown include apple, peach, pear, and plum trees. Orchard crops do well on better drained soils with loamier textures. A small percentage of the produce is sold locally through roadside markets with the majority of the crop being trucked out.

Vineyards are mostly located in the north in order to take advantage of the moderating affect of Lake Erie. Grapes do well on the more acidic soils such as Platea. The grape crop is used for food and wine products.

Most nursery operators locate near the lake. Growers market a variety of landscape and garden plants. There is potential for more nursery stock production if drainage improvements can be applied more extensively to the soils on the lake plain. Good highways and being located near large metropolitan areas help in marketing nursery products. Deep, well drained soils such as Chenango, Tyner, and Otisville are preferred by nursery operators.

Irrigation is used on some specialty crops. Slope, water holding capacity, infiltration rates, and rooting depths are important considerations when planning irrigation practices. A slope of no more than six percent is recommended. Well drained and moderately well drained soils with loam or sandy textures, such as the Harbor soils respond best to irrigation. Most irrigation water is obtained from wells and ponds. Drip irrigation systems are often used because they reduce runoff, use less water, and are generally more efficient.

Planners of agricultural management systems can find the specific information given in the detailed soil map descriptions and the interpretation tables helpful.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Ohio State University Extension.

Cropland Limitations and Hazards

The management concerns affecting the use of the detailed map units in the survey area for crops are shown in table 8 (Cropland Limitations and Hazards). The main concerns in managing nonirrigated cropland are controlling flooding and soil blowing and water erosion, preventing ground-water pollution, removing excess water, reducing surface crusting, reducing compaction, and maintaining soil tilth, organic matter, and fertility.

Generally, a combination of several practices is needed to control *soil blowing* and *water erosion*. Conservation tillage, stripcropping,field windbreaks, tall grass barriers, contour farming, conservation cropping systems, crop residue management, diversions, and grassed waterways help to prevent excessive soil loss.

Surface and/or subsurface drainage is used to remove excess water, lower *seasonal high water tables*, and to reduce *ponding*.

A *surface crust* forms in tilled areas after hard rains and may inhibit seedling emergence. Regular additions of crop residue, manure, or other organic materials help to improve soil structure and minimize crusting.

Tilling within the proper range in moisture content minimizes *compaction*.

Measures that are effective in maintaining *soil tilth*, *organic matter*, and *fertility* include applying fertilizer, both organic and inorganic, including manure; incorporating crop residue or green manure crops into the soil; and using proper crop rotations. Controlling erosion helps to prevent the loss of organic matter and plant nutrients and thus helps to maintain productivity, although the level of fertility can be reduced even in areas where erosion is controlled. All soils used for nonirrigated crops respond well to applications of fertilizer.

Some of the limitations and hazards shown in the table cannot be easily overcome. These are *flooding*, *ponding*, *slope*, *limited organic matter content*, and *depth to bedrock*.

Flooding.—Flooding can damage winter grain and forage crops. A tillage method that partly covers crop residue and leaves a rough or ridged surface helps to prevent removal of crop residue by floodwater. Tilling and planting should be delayed in the spring until flooding is no longer a hazard.

Ponding.—Surface drains helps to remove excess surface water and reduce damage by ponding.

Slope.—Where the slope is more than 25 percent, water erosion is excessive. The selection of crops and use of equipment are limited. Cultivation may be restricted.

Limited organic matter content.—Many soils that have a light-colored surface layer have a low or moderately low content of organic matter and weak or moderate structure. Regularly adding crop residue, manure, and other organic matter materials to the soil maintains or improves the organic matter content and the soil structure.

Depth to bedrock.—Rooting depth and available moisture may be limited by bedrock within a depth of 40 inches.

Additional limitations and hazards are as follows:

Potential for ground-water pollution.—The potential for ground-water pollution is a concern in areas of soils that have excessive permeability, moderately deep or shallow bedrock, or a water table within the profile.

Limited available water capacity, *poor tilth*, *restricted permeability*, and *surface crusting*.—These limitations can be overcome by incorporating green manure crops, manure, or crop residue into the soil; applying a system of conservation tillage; and using conservation cropping systems.

Frost action.—Frost action can damage deep-rooted legumes and some small grains.

Sandy layers.—Deep leaching of nutrients and pesticides may result from sandy layers. Crops generally respond better to smaller, more frequent applications of fertilizer and lime than to one large application.

Clodding.—Clods may inhibit germination, reduce water infiltration, and increase runoff.

Subsidence of the muck.—Subsidence or shrinking occurs as a result of oxidation in the muck after the soil is drained. Control of the water table by subirrigation through subsurface drain lines reduces the hazards of subsidence, burning, and wind erosion.

High clay content.—The high clay content in the soil reduces rooting depth and water movement.

Root restrictive layers.—Root restrictive layers limit root growth and water movement.

Excessive alkalinity.—High pH in the upper part of the soil may inhibit plant growth and reduce the availability of potassium and micronutrients.

Excessive acidity.—Low pH in the upper part of the soil may increase concentrations of aluminum and manganese and may injure plants.

Gravelly surface.—This limitation causes rapid wear of tillage equipment. It cannot be easily overcome.

Stony surface.—Stones or boulders on the surface can hinder normal tillage unless they are removed.

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

Easily eroded.—The K factor of the surface layer multiplied by the relative value of the slope is more than 2 (same as prime farmland criteria).

Erosion hazard.—The relative value of the slope is greater than 2.

Frequent flooding.—The component of the map unit is frequently flooded.

Occasional flooding.—The component of the map unit is occasionally flooded.

Limited available water capacity.—The available water capacity calculated to a depth of 60 inches or to a root-limiting layer is 6 inches or less.

Ponding.—Ponding duration is assigned to the component of the map unit.

Ponded for extended periods.—Very long ponding duration is assigned to the component of the map unit.

Gravelly surface.—The texture of the surface layer includes a flaggy, very flaggy, extremely flaggy, very gravelly, extremely gravelly, or very channery modifier.

Stony surface.—The texture of the surface layer includes a bouldery, very bouldery, extremely bouldery, stony, very stony, extremely stony, cobbly, very cobbly, or extremely cobbly modifier.

Sandy layers.—The family particle size is sandy, sandy or sandy-skeletal, sandy over loamy, sandy over clayey, sandy-skeletal, sandy-skeletal over clayey, or sandy-skeletal over loamy; or the subgroup is Arenic or Psammentic; or the suborder is Psamments.

Depth to bedrock.—Bedrock is at a depth of less than 40 inches.

High potential for ground water pollution.—The soil has hard bedrock within the profile, or permeability is more than 6 inches per hour within the soil.

Moderate potential for ground water pollution.—The soil has an apparent water table within a depth of 4 feet, or moderately rapid permeability between 24 and 60 inches.

Poor tilth.—The component of the map unit is severely eroded, has less than 1 percent organic matter in the surface layer, or 35 percent or more clay in the surface layer.

Fair tilth.—The component of the map unit has a silty clay loam or clay loam surface layer and less than 35 percent clay or moderately eroded and a silt loam or loam surface texture.

Excessive acidity.—The upper range of the soil pH is less than 4.5 within 40 inches.

Excessive alkalinity.—The lower range of the soil pH is more than 7.4 within 40 inches.

Restricted permeability.—Permeability is 0.2 inches per hour or less within the soil profile and a seasonal high water table is within 18 inches.

Seasonal high water table.—The lower limit of the seasonal high water table is less than 1.5 feet.

Excessive slope.—The upper slope range of the component of the map unit is more than 25 percent.

Surface crusting.—The organic matter content of the surface layer is less than or equal to 3 percent and the texture is silt loam or silty clay loam.

Surface compaction.—The component of the map unit has a silt loam, silty clay loam, clay loam, clay, or silty clay surface layer.

Frost action.—The component of the map unit has a high potential for frost action.

Part of surface removed.—The surface layer of the component of the map unit is moderately eroded.

Most of surface removed.—The surface layer of the component of the map unit is severely eroded.

Subsidence of the muck.—The organic matter content of the surface layer of the component of the map unit is greater than or equal to 20 percent.

Wind erosion.—The upper range of the slope is less than or equal to 25 percent and the wind erodibility group is 1, 2, or 3.

Clodding.—The relative value of the total clay in the surface layer is greater than 32 percent.

Root restrictive layer.—Fragipan or dense material within 40 inches.

High clay content.—A layer within 40 inches of the surface has clay content that averages between 40 and 60 percent.

Very high clay content.—A layer within 40 inches of the surface has clay content that averages more than 60 percent.

Crop Yield Index

Table 9 includes the crop yield index for Ashtabula County (fig. 18). The yield index reflects the yield potential of a soil in relation to other soils in the county. It is based on the most productive soil, GfA—Glenford silt loam, 0 to 2 percent slopes, receiving a rating of 100, and other soils are ranked against this standard.

The yields used to calculate the index values are based on using good management practices.

GfA—Glenford silt loam, 0 to 2 percent slopes average yields per acre are approximately 115 bushels for corn, 4 tons for grass-legume hay, 80 bushels for oats, 45 bushels for soybeans, and 50 bushels for wheat. To calculate estimated yields, for other soils using the table, use the yield index number as a percentage, and multiply it by the crop yield in the table header. For example, to calculate estimated corn yield for BkA—Blakeslee silt loam, 0 to 2 percent slopes, multiply 0.96 by the corn yield in the header, which is 115 (115 x 0.96 — 110.4 bushels of corn estimated for BkA—Blakeslee silt loam, 0 to 2 percent slopes).

Figure 18.—Grass-legume hay yields are given as indexes in Table 9.—Crop Yield Index. The soils in this hay field are mostly Platea.

To use this yield index in the future to calculate estimated yields, use current yield data.

Additional information on calculating estimated yields can be obtained from the local office of the Natural Resources Conservation Service or the Ohio State Extension.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, woodland, or wildlife habitat (fig. 19).

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, woodland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, woodland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The acreage of soils in each capability class or subclass is shown in table 10 (Capability Classes and Subclasses). The capability classification of map units in this survey area is given in the section “Detailed Soil Map Units” and in the section “Interpretive Groups”.

Figure 19.—Carlisle muck is a capability class 5w soil that supports good wetland wildlife habitat.

Pasture and Hayland Suitability Groups

The pasture and hayland suitability group symbol for each soil is listed in each map unit description and in the “Interpretive Groups” section. Soils assigned to the same suitability group require the same general management and have about the same potential productivity. The pasture and hayland suitability groups are organized by soil characteristics and limitations. The groups are described in the following paragraphs.

Soils assigned to group A have few limitations affecting the management and growth of climatically adapted plants.

Soils in group A-1 are deep or very deep and are well drained or moderately well drained. The available water capacity ranges from moderate to very high. Slopes range from 0 to 18 percent. Plants on these soils respond well to additions of lime. Frequent applications may be needed to maintain an adequate pH level. A low pH level in the subsoil shortens the life of some deep-rooted legumes.

Soils in group A-2 are deep or very deep and are well drained or moderately well drained. The available water capacity ranges from moderate to very high. Slopes range from 18 to 25 percent. Plants on these soils respond well to additions of lime. Frequent applications may be needed to maintain an adequate pH level. A low pH level in the subsoil shortens the life of some deep-rooted legumes. The slope may interfere with clipping, mowing, and spraying for weed control. The slope also increases the hazard of erosion if the areas are overgrazed or cultivated for reseeding. The soils in this group are suited to no-till reseeding and interseeding.

Soils in group A-3 are deep or very deep and are well drained or moderately well drained. The available water capacity ranges from moderate to very high. Slopes range from 25 to 40 percent. These soils are not suited to pasture or hay, but some grass pasture is produced.

Soils in group A-4 are deep or very deep and are well drained or moderately well drained. They have stones and boulders on the surface that preclude the use of hay-making equipment. Slopes range from 0 to 40 percent.

Soils in group A-5 are well drained or moderately well drained and are subject to flooding. The available water capacity ranges from moderate to very high. Slopes range from 0 to 18 percent. Grazing is limited during periods of stream overflow. Floodwater can deposit sediments that lower the quality of forage in areas of these soils.

Soils in group A-6 are deep or very deep, are well drained or moderately well drained, and are subject to frost action. The available water capacity ranges from moderate to very high. Slopes range from 0 to 18 percent. Frost action can damage legume stands. Mixing fibrous-rooted grasses with the legumes and using proper grazing management methods help to prevent the damage caused by frost action.

Soils in group B have limited growth and production potential because of droughtiness.

Soils in group B-1 are deep or very deep and are well drained or moderately well drained. The available water capacity is low or very low. Slopes range from 0 to 25 percent. The limited available water capacity restricts forage growth and production.

Soils in group B-2 are deep or very deep and are well drained or moderately well drained. The available water capacity is low or very low. Slopes range from 25 to 40 percent. The limited available water capacity restricts forage growth and production.

Soils in group B-3 are well drained to somewhat poorly drained. They are subject to flooding. Slopes range from 0 to 6 percent.

Soils in group B-4 are deep or very deep and are well drained or moderately well drained. They are in areas of reclaimed mines. The available water capacity is low or very low. Slopes range from 0 to 25 percent. The substratum has a high content of rock fragments. The root zone ranges from 20 to 30 inches.

Soils in group C are wet because of a seasonal high water table.

Soils in group C-1 are deep or very deep and are somewhat poorly drained to very poorly drained. Slopes range from 0 to 12 percent. These soils normally respond well to subsurface drainage.

Soils in group C-2 are deep or very deep and are somewhat poorly drained to very poorly drained. They have a seasonal high water table, which restricts the growth of deep-rooted forage plants or species that have a taproot. Shallow-rooted species grow best on these soils. Subsurface drains are used to lower the seasonal high water table. The effectiveness of subsurface drainage is typically restricted by the permeability of the subsoil, by a high content of clay in the subsoil, or by a fragipan. Slopes range from 0 to 12 percent.

Soils in group C-3 are somewhat poorly drained to very poorly drained and are subject to flooding. The soils have a seasonal high water table, which restricts the rooting depth of forage plants. Shallow-rooted species grow best on these soils. The available water capacity ranges from moderate to very high. Slopes range from 0 to 6 percent. Grazing is limited during periods of stream overflow.

Soils in group D have a high content of organic matter.

Soils in group D-1 formed entirely or partially in organic material. Slopes range from 0 to 2 percent.

Soils in group E are shallow soils in which root growth is restricted to a depth of less than 20 inches.

Soils in group E-1 are shallow or very shallow. The available water capacity is low or very low. Slopes range from 0 to 25 percent. The limited available water capacity restricts forage production. These soils are well suited to native warm-season grasses.

Soils in group E-2 are shallow or very shallow or have a high bulk density and cobbles and stones in the upper part. The available water capacity is low or very low. Slopes range from 25 to 40 percent. Shallow-rooted species should be selected for planting in areas of these soils.

Soils in group E-3 have a high bulk density and cobbles and stones in the upper part. The available water capacity is low or very low. Slopes range from 0 to 25 percent.

Soils in group F have a root zone that extends to a depth of 20 to 40 inches. These soils are better suited to forage species that do not have a taproot than to other species.

Soils in group F-1 are moderately deep and are well drained or moderately well drained. Slopes range from 0 to 25 percent.

Soils in group F-2 are moderately deep and are well drained or moderately well drained. Slopes range from 25 to 40 percent. These soils are generally not suited to hay.

Soils in group F-3 are well drained or moderately well drained. They are moderately deep to a fragipan. Slopes range from 0 to 25 percent.

Soils in group F-4 are well drained or moderately well drained. They are moderately deep to a fragipan. Slopes range from 25 to 40 percent.

Soils in group F-5 are well drained or moderately well drained. Rooting depth is restricted in the subsoil by a high bulk density, a high content of clay, slow permeability, or a combination of these factors. Slopes range from 0 to 25 percent.

Soils in group F-6 are well drained or moderately well drained. Rooting depth is restricted in the subsoil by a high bulk density, a high content of clay, slow permeability, or a combination of these factors. Slopes range from 25 to 40 percent.

Soils in group F-7 are somewhat poorly drained to very poorly drained. A high content of clay in the subsoil and very slow permeability restrict the rooting depth of forage plants. Slopes range from 0 to 12 percent.

Soils in group G have chemical properties that are unfavorable for many climatically adapted plants.

Soils in group G-1 are well drained or moderately well drained and are shallow or moderately deep to toxic spoil from surface mining operations. The available water capacity is low or very low in the root zone. Slopes range from 0 to 25 percent.

Soils in group G-2 are well drained or moderately well drained and are shallow or moderately deep to toxic spoil from surface mining operations. Slopes range from 25 to 40 percent.

Soils in group H are toxic or are too steep for forage production.

Soils in group H-1 are toxic as a result of surface mining operations or have slopes of 40 percent or more. These soils are generally not suited to pasture and hay.

Woodland Management and Productivity

Mark Popichak, Service Forester, Ohio Department of Natural Resources, Division of Forestry, helped prepare this section.

The tables in this section can help woodland owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of woodland management.

Before the arrival of settlers, Ashtabula County was largely covered by virgin hardwood forest (Gordon, 1969). Most of this forest was cleared so the land could be put in crop production or used for pasture. A significant percentage of the county acreage is again in woodlands, particularly in the northern parts of the county where idle and abandoned fields are reverting to trees (fig. 20). Most woodlots have been harvested several times and have been pastured at some time. The condition of existing woodlands varies depending on past management, species composition, age of stand, soil types, and previous logging practices.

Soils differ greatly in their productivity. Factors that influence tree growth are similar to those that influence the production of crops and pasture. Soil reaction and fertility

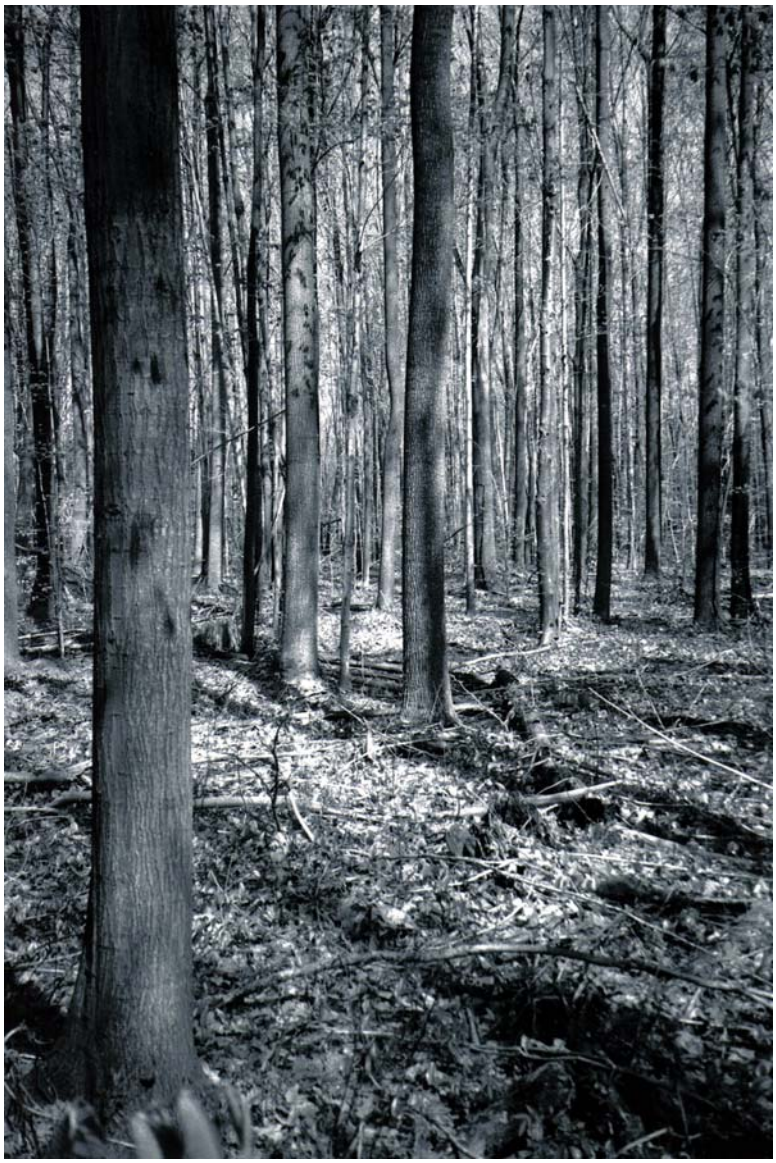


Figure 20.—This young woodland is maturing on Mill silt loam, 0 to 2 percent slopes. This area had previously been cleared of timber and used for cropland.

influence tree growth and the suitability of the soils for different tree species. Trees grow more slowly on all less fertile soils, but fertility has a major effect on their production only in areas where critical nutrients are deficient.

Soil properties influence forest management practices, survival rates, species selection, equipment limitations, windthrow hazard, and erosion potential (fig. 21). Soil water holding capacity, internal drainage, and slope gradients affect plant competition and seedling mortality. Surface texture, amount of soil organic matter, slope, and drainage influence logging schedules, equipment limitations, and damage sustained to the forest environment during logging operations. Root development and depth are limited by high water tables, fragipans, bedrock, or other restrictive layers. Restricted root growth increases windthrow hazard and lowers site productivity.

Internal soil drainage is an important consideration when selecting which species to plant. Soils that are subject to ponding and wetness commonly support stands of

Figure 21.—The water in the foreground collected in shallow depressions made by former tree windthrows in Mill silt loam, 0 to 2 percent slopes. Micro-ridges were formed on the leeward side as the uprooted soil was redeposited upon deterioration of the root mass.

soft maple, bur oak, swamp white oak, and pin oak. Somewhat poorly drained soils are best suited to wet site species including soft maple, swamp white oak, bur oak, American elm, and pin oak. Moderately well drained and well drained soils support a greater variety of species. Associated species are red oak, white oak, ash, hickory, basswood, walnut, yellow poplar, sugar maple, beech, and cherry.

Income from the sale of timber is lower than that of other farm products. However, if properly managed, woodlands have the potential to provide per acre income similar to other agricultural products through the periodic sale of timber (fig. 22). Woodlands also provide wildlife habitat, protect soils from erosion, maintain or improve water quality, serve as windbreaks, and offer aesthetic and recreational values. Woodlands are also a source of edible nuts and fuel wood.

Figure 22.—Timber products, sawn on site, from trees grown on Chenango gravelly loam, 2 to 6 percent slopes.

Former crop fields in the county are being left to naturally succeed to woodlands. Land owners could increase future incomes by planting site specific species that have a greater potential market value.

Woodland Management

In tables 11 through 14, interpretive ratings are given for various aspects of woodland management. The ratings are stated with descriptive terms and numerical values.

Some rating class terms indicate the degree to which the soils are suited to a specified woodland management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified woodland management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for fire damage and seedling mortality are *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for erosion damage or seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for woodland management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet (http://nsscnt.nssc.nrcs.usda.gov/nfm/).

Ratings in the column *erosion hazard* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of woodland equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *harvest equipment operability* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for site preparation* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *potential for damage to soil by fire* are based on texture of the surface layer, content of rock fragments and organic matter in the surface layer, thickness of the surface layer, and slope. The soils are described as having a low, moderate, or high potential for this kind of damage. The ratings indicate an evaluation of the potential impact of prescribed fires or wildfires that are intense enough to remove the duff layer and consume organic matter in the surface layer.

Information on woodland management is available from the Ohio Department of Natural Resources, Division of Forestry, the Ohio State University Extension, Farm Services Agency, and the Natural Resources Conservation Service.

Woodland Productivity

In table 12 (Woodland Productivity) 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 woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Windbreaks and Environmental Plantings

Farm and homestead windbreaks are rows of trees or shrubs established adjacent to farm buildings, feedlots, and homes. These windbreaks are usually planted perpendicular to the prevailing winter wind. Planting multiple rows of various species provides the best protection from winds and results in more varied wildlife habitat. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 15 (Windbreaks and Environmental Plantings), shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 15 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service, the Ohio Department of Natural Resources, Division of Forestry, or of the Ohio State University Extension or from a commercial nursery.

Recreational Development

Ashtabula county has many recreational areas open to the public. Scouting organizations own camps and reservations in the county, the largest being the

Beaumont Scout Reservation operated by the Boy Scouts of America in Morgan Township. Geneva State Park, on the shores of Lake Erie, and Pymatuning State Park, bordering Pymatuning Reservoir, offer public hunting, fishing, boating, and camping. Conservation areas in Orwell and New Lyme Townships are open for public use. Other recreational areas include township parks, golf courses, metro parks, city parks, and private campgrounds

The soils of Ashtabula County are rated in table 16 (Recreational Development Part 1), and table 17 (Recreational Development Part 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 tables 16 and 17 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns

affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Jim Hill, Biologist, Ohio Department of Natural Resources, Division of Wildlife, and Nathan Paskey, District Program Administrator, Ashtabula Soil and Water Conservation District, helped prepare this section.

Ashtabula County has several public and privately managed wildlife areas. Public lands include Geneva State Park, Pymatuning State Park, New Lyme State Wildlife Area, and the Orwell State Wildlife Area. The Beaumont Scout Reservation is owned by the Boy Scouts of America.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the distribution of shallow surface water and 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.

Ashtabula County has a variety of wildlife supported by several habitat types including woodland, wetland, grassland, edge areas, cropland, shallow water areas, and deep open-water areas. The wide variety of habitat types is due largely to

differences in soil types. Success in maintaining, improving, or creating wildlife habitat is dependent on the soil types present and their limitations. Soils affect the kind and amount of vegetation available for food and cover, and particular soil characteristics are needed for the successful construction of water impoundments and wetlands.

A variety of wetland wildlife habitats can be found throughout the county. Suitable wetland habitat exists along most of the major rivers, tributaries, and creeks. Ashtabula County is currently a focus area of the North American Waterfowl Management Plan due to quality and quantity of wetlands found here and in adjacent counties. Mallards, wood ducks, and Canada geese are primary nesters. Hooded mergansers, black ducks, blue-winged teal, prothonatary warblers, woodcock and snipe are other species of migratory waterfowl that take advantage of the wetland complexes. River otters have expanded into the wetlands after reintroduction into the state in the mid-1980s. Muskrats, mink and beavers are more common mammals found in the wetlands of the county. State-endangered trumpeter swans have recently been reported on wetlands after their recent release in Trumbull County. However, the major benefit of the wetlands in the county may be for the enormous number of migratory species that travel through the county and take advantage of the wetland to rest and feed to restore energy levels needed to make their annual journeys.

Ashtabula County has the largest and best examples of hemlock-hardwood swamp remaining in Ohio. This rare plant community is often found within other wet forest complexes, but is unique due to the dominance of hemlock and red maple in a hummock and hollow topography. It is found on flats such as river terraces or lake plains in association with seeps at the bases of beach ridges. This plant community is home to many state endangered plant species. It is important habitat for several wildlife species not found in other parts of the state such as the mountain dusky salamander. These swamps are the focus of snowshoe hare reintroduction in Ohio and support some of the only nesting sites of birds such as saw-whet owls, yellowbellied sapsuckers and northern waterthrush.

A wide variety of upland wildlife habitats also exist in Ashtabula County. Much of it is in close proximity to waterways, lakes, and ponds. White-tailed deer and wild turkeys are very plentiful across the county. Squirrels, crows, bluejays, raccoons, opossums, skunks and chipmunks are commonly sighted while traversing the woodlands. The state-endangered black bear has recently been expanding its range into Ohio from Pennsylvania. Besides woodland, other common upland habitat types include cropland, grassland and old field that are reverting to woodland. Cottontail rabbits, woodchucks, red-tailed hawks and meadowlarks utilize these areas. Common soils in these areas include Darien, Cambridge, and Venango.

Loss of habitat is the main reason for population declines among wildlife species. Food, water, and cover (nesting and weather protection) are essential for restoring, maintaining, and increasing wildlife numbers and species. Soil qualities and limitations affect wildlife management decisions. Information contained in this report should be used when establishing, improving, or maintaining wildlife areas. On-site investigations are sometimes needed to determine specific soil characteristics

In table 18 (Wildlife Habitat), the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive

management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, soybeans, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, manna grass, and ferns.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, raspberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are arrow-wood, elderberry, and crabapple.

Coniferous plants furnish browse, seeds and cover. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and oxbows.

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 dominated by 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 pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife

attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, beaver and amphibians.

For additional information on the development of wildlife habitat contact Ohio Department of Natural Resources, Division of Wildlife, the Soil and Water Conservation District, or the Natural Resources Conservation Service.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density (fig. 23). Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Figure 23.—Soil-water relationships such as the depth to the water table or likelihood of flooding is critical for many engineering considerations. This area of Stanhope silt loam, 0 to 2 percent slopes, frequently flooded is covered by spring flood water.

Construction Materials

Table 19 (Construction Materials Part 1) and table 20 (Construction Materials Part 2), give information about the soils as potential sources of gravel, sand, reclamation material, roadfill and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Gravel and *sand* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 19, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of gravel and sand. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill and topsoil. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

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 21 (Building Site Development Part 1), and table 22 (Building Site Development Part 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 23 (Sanitary Facilities Part 1) and table 24 (Sanitary Facilities Part 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. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Agricultural Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 25 (Agricultural Waste Management), shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect

performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals.

Water Management

Table 26 (Water Management Part 1) and table 27 (Water Management Part 2) give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds; grassed waterways; terraces and diversions; and drainage. 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).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Constructing grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of water erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Constructing terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

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 in accordance with established standard procedures. During the survey, many shallow borings are made and soil characteristics examined to identify and classify the soils and to delineate them on the soil maps. Estimates of soil properties are based on field examinations and on laboratory tests. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

Samples are taken from some typical soil profiles and tested in the laboratory to determine particle-size distribution, reaction, organic matter content, calcium carbonate content, extractable cations, plasticity, and compaction characteristics. In addition to the data from Ashtabula County, laboratory data are available from nearby or adjacent counties that have many of the same soils. These results are retained at the School of Natural Resources, Ohio State University, Columbus, Ohio; the Ohio Department of Natural Resources, Division of Soil and Water Conservation, Columbus, Ohio; and the USDA-Natural Resources Conservation Service, state office, Columbus, Ohio.

The estimates of soil properties are shown in table 28 (Engineering Index Properties), table 29 (Physical Properties of the Soils), table 30 (Chemical Properties of the Soils), table 31 (Water Features), and table 32 (Soil Features).

Engineering Index Properties

Table 28 (Engineering Index Properties) gives the engineering classifications and the range of index properties for the layers of each soil in Ashtabula County.

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. 24). “Loam”, for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If 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

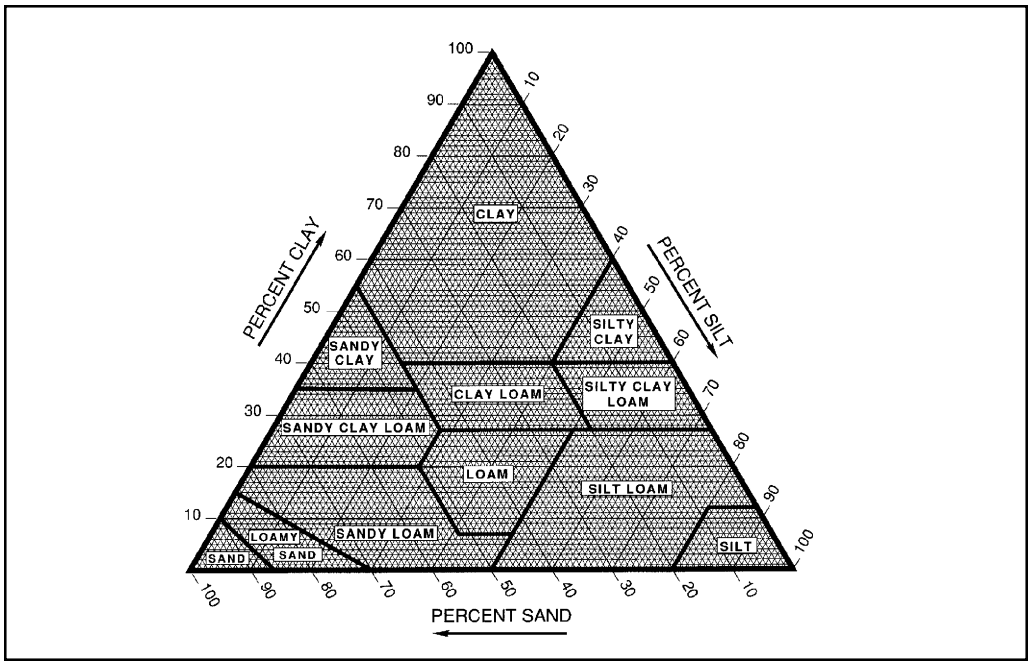


Figure 24.—Textural Triangle. Percentages of sand, silt and clay in the twelve basic USDA soil texture classes.

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. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 28.

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 29 (Physical Properties of the Soils) shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the Ashtabula County. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller. Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 29, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. Clays influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of

the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on the basis of measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are low, a change of 3 percent; moderate, 3 to 6 percent; high, more than 6 percent; and very high, greater than 9 percent.

Erosion factors are shown in table 29 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 30 (Chemical Properties of the Soils) shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in Ashtabula County. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 30, 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 31 (Water Features), gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the

surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 31 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.

Water tables are identified by *kind*. The two kinds are *apparent* and *perched*. Apparent water tables occur in some soils and begin at the upper surface of ground water or that level in the soil where the water is at atmospheric pressure. The saturated state continues downward for an indefinite depth. Perched water tables occur in some soils and are characterized by having a saturated layer of soil which is separated from any underlying saturated layers by an unsaturated layer.

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 31 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 32 (Soil Features) gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer. The table indicates the thickness and hardness of the restrictive layer, both of which significantly affect the ease of excavation.

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 (Soil Survey Staff, 1994, 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. Tables 33a—Classification of the Soils–6th edition of Keys to Soil Taxonomy and 33b—Classification of the Soils–8th edition of Keys to Soil Taxonomy show the classification of the soils in Ashtabula County. 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 *Oxyaquic* identifies one subgroup of the great group. An example is Oxyaquic 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-loamy, mixed, active, mesic Oxyaquic 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. An example is the Blakeslee soil series.

Soil Series and Their Morphology

In this section, each soil series correlated in Ashtabula County is described in alphabetical order. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional volume of soil that is typical of the series in the survey area is described. Pedon descriptions published in this survey come from Ashtabula County or adjacent counties. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Blakeslee Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Glaciolacustrine sediments and the underlying stratified glaciofluvial deposits
Landform: Outwash plain and terrace
Positions on the landform:
Outwash plain: convex flat, slight rise, low knoll, shoulder, backslope and footslope
Outwash terrace: tread and riser
Slope: 0 to 12 percent
Adjacent soils: Chenango, Harbor, and Red Hook soils
Taxonomic class: Fine-loamy, mixed, mesic Oxyaquic Hapludalfs

Typical Pedon

Blakeslee silt loam, 2 to 6 percent slopes, about 1.3 miles northwest of Plymouth Center, in Plymouth Township, 50 feet west of the intersection of Runkle Road (County Road 23) and Howard Road (County Road 329), then 445 feet south. T. 12 N., R. 3 W.

A—0 to 5 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine and medium granular structure; very friable; many fine and very fine, and common medium and coarse roots throughout; 1 percent pebbles; extremely acid; abrupt wavy boundary.

BE—5 to 8 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; very friable; many fine and very fine, and common medium and coarse roots throughout; few prominent dark brown (10YR 3/3) organic coats in root channels; few distinct pale brown (10YR 6/3) clay depletions on faces of peds, less than 15 percent by volume; 3 percent pebbles; extremely acid; clear wavy boundary.

Bt1—8 to 12 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; very friable; many fine and very fine, and common medium and coarse roots throughout; few distinct brown (7.5YR 5/4) clay films on vertical and horizontal faces of peds; few prominent dark brown (10YR 3/3) organic coats in root channels; 2 percent pebbles; extremely acid; clear wavy boundary.

Bt2—12 to 16 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; common fine and very fine, and few medium roots throughout; few distinct brown (7.5YR 5/4) clay films on vertical and

horizontal faces of peds; few prominent dark brown (10YR 3/3) organic coats in root channels; 1 percent pebbles; extremely acid; clear wavy boundary.

Bt3—16 to 20 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; friable; common fine and very fine, and few medium roots throughout; few distinct brown (7.5YR 5/4) clay films on vertical and horizontal faces of peds; few prominent dark brown (10YR 3/3) organic coats in root channels; extremely acid; clear wavy boundary.

Bt4—20 to 26 inches; yellowish brown (10YR 5/4) clay loam; strong fine and medium angular and subangular blocky structure; firm; common fine and very fine roots throughout; common distinct brown (7.5YR 5/4) clay films on vertical and horizontal faces of peds; very few prominent dark brown (10YR 3/3) organic coats in root channels; common medium distinct gray (10YR 6/1) iron depletions in the matrix; common medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; 12 percent pebbles; extremely acid; gradual wavy boundary.

2BC1—26 to 33 inches; dark yellowish brown (10YR 4/6) sandy loam; weak very coarse subangular blocky structure parting to weak medium platy; very friable; few very fine roots throughout; common coarse and very coarse distinct strong brown (7.5YR 5/6) masses of iron oxide adjacent to common coarse and very coarse prominent gray (10YR 6/1) iron depletions in the matrix as vertical streaks; 11 percent pebbles; very strongly acid; gradual wavy boundary.

2BC2—33 to 39 inches; dark yellowish brown (10YR 4/4) gravelly coarse sandy loam; weak coarse and very coarse granular structure; loose; very few very fine roots throughout to a depth of about 40 inches; 21 percent pebbles; very strongly acid; gradual wavy boundary.

2C1—39 to 51 inches; dark yellowish brown (10YR 4/4) very gravelly coarse sandy loam; massive; loose; 48 percent pebbles; strongly acid; gradual wavy boundary.

2C2—51 to 80 inches; dark yellowish brown (10YR 4/4) very gravelly coarse sandy loam; single grain; loose; 43 percent pebbles; moderately acid.

Range in Characteristics

Thickness of the solum: 25 to 55 inches
Depth to redox depletions: 12 to 24 inches
Depth to carbonates: Greater than 80 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: A horizon—0 to 10 percent; Bt or 2Bt horizons—0 to 30 percent; 2BC horizon—10 to 50 percent; 2C horizon—25 to 80 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—silt loam or loam

Bt or 2Bt horizons:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 4 to 6
Texture—silt loam, loam, silty clay loam, clay loam or their gravelly analogues

2C horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 4 to 6
Texture—stratified gravelly to extremely gravelly analogues of loam to coarse sandy loam; strata of coarser textured material with lower rock fragment content in some pedons

Cambridge Series

Depth class: Very deep
Drainage class: Moderately well drained

Parent material: Till
Landform: End and ground moraine
Position on the landform: Knoll, summit, shoulder backslope and footslope
Slope: 2 to 18 percent
Adjacent soils: Mill and Venango soils
Taxonomic class: Coarse-loamy, mixed, mesic Oxyaquic Fragiudalfs

Typical Pedon

Cambridge silt loam, 2 to 6 percent slopes, about 2.1 miles east-northeast of Richmond Center, in Richmond Township, 1,740 feet east of the intersection of Footville-Richmond Road (County Road 12) and Pymatuning-Lake Road (County Road 274), then 60 feet north. T. 10 N., R. 1 W.

Oa—0 to 1 inch; dark brown (10YR 3/3) decomposed organic material; many fine roots; abrupt smooth boundary.

A—1 to 2 inches; very dark brown (10YR 2/2) silt loam, very dark gray (10YR 3/1) dry; strong very fine and fine granular structure; very friable; many roots; 1 percent rock fragments; very strongly acid; clear wavy boundary. (1 to 3 inches thick.)

Bw1—2 to 9 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; common roots; 5 percent rock fragments, mainly sandstone; very strongly acid; gradual wavy boundary.

Bw2—9 to 18 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; firm; common roots; 5 percent rock fragments, mainly sandstone; very strongly acid; clear wavy boundary.

Bw3—18 to 22 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; firm; few roots; many distinct light yellowish brown (10YR 6/4) silt coats on faces of peds; common fine prominent strong brown (7.5YR 5/6) masses of iron in the matrix; 5 percent rock fragments; very strongly acid; clear wavy boundary.

Bw4—22 to 25 inches; strong brown (7.5YR 5/6) silt loam; weak fine and medium subangular blocky structure; firm; few roots; many distinct light yellowish brown (10YR 6/4) silt coats on faces of peds; common medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; common fine distinct strong brown (7.5YR 5/8) masses of iron in the matrix; 5 percent rock fragments; strongly acid; abrupt wavy boundary. (Combined thickness of the Bw horizons is 11 to 24 inches.)

Btx1—25 to 38 inches; dark yellowish brown (10YR 4/4) silt loam; weak very coarse prismatic structure parting to weak medium angular blocky; very firm, brittle; very few fine roots along faces of prisms; many distinct dark grayish brown (10YR 4/2) clay films on faces of prisms; many prominent light brownish gray (2.5Y 6/2) and gray (10YR 5/1) iron-depleted silt coats on faces of prisms; strong brown (7.5YR 5/8) thick rind along outer edge of prisms; common medium black (10YR 2/1) masses of iron and manganese in the matrix; 5 percent rock fragments, mainly sandstone; slightly acid; diffuse wavy boundary.

Btx2—38 to 51 inches; olive brown (2.5Y 4/4) silt loam; weak very coarse prismatic structure parting to weak medium angular blocky and thick platy; very firm, brittle; common distinct light olive gray (5Y 6/2) iron-depleted clay films on faces of prisms; few medium black (10YR 2/1) masses of iron and manganese in the matrix; 10 percent rock fragments, mainly sandstone; slightly acid; clear wavy boundary. (Combined thickness of the Btx horizons is 10 to 36 inches.)

C—51 to 72 inches; olive brown (2.5Y 4/4) silt loam; massive; firm; few prominent gray (5Y 6/1) iron-depleted coats on vertical seams; 10 percent rock fragments, mainly sandstone with some black shale and some crystalline rocks; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 50 to 67 inches
Depth to bedrock: Greater than 60 inches
Depth to carbonates: 43 to greater than 80 inches
Depth to fragipan: 20 to 30 inches
Content of rock fragments: A horizon—0 to 10 percent; Bw horizon—2 to 15 percent; Btx horizon—2 to 20 percent; C horizon—3 to 25 percent

A or Ap horizon:
Color—hue of 10YR, value of 2 to 4, chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 4 to 6
Texture—silt loam, loam or their gravelly or channery analogues

Btx horizon:
Color—hue of 7.5YR, 10YR or 2.5Y, value of 4 or 5, chroma of 3 to 6
Texture—loam, silt loam, clay loam or their gravelly or channery analogues

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 or 4
Texture—loam, silt loam or their gravelly or channery analogues

Canadice Series

Depth class: Very deep
Drainage class: Poorly drained
Parent material: Glaciolacustrine sediments
Landform: Valley floor
Position on the landform: Broad concave flat and depression on tread
Slope: 0 to 2 percent
Adjacent soils: Caneadea, Fitchville, Otego, and Sebring soils
Taxonomic class: Fine, illitic, mesic, Typic Endoaqualfs

Typical Pedon

Canadice silt loam in an area of Caneadea-Canadice silt loams, 0 to 2 percent slopes, about 2.7 miles southeast of Orwell, in Orwell Township, 1,350 feet west of the intersection of Moore Road (Township Road 562) and Fenton Road (Township Road 76), then 500 feet south. T. 8 N., R. 3 W.

A1—0 to 4 inches; very dark gray (10YR 3/1) silt loam, dark gray (10YR 4/1) crushed and rubbed, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine to coarse roots; yellowish red (5YR 4/6) oxidized rhizospheres in root channels; neutral; clear wavy boundary.
A2—4 to 10 inches; dark gray (10YR 4/1) silty clay loam, gray (10YR 5/1) dry; weak coarse subangular blocky structure; friable; common very fine to medium roots; yellowish red (5YR 4/6) oxidized rhizospheres in root channels; neutral; clear wavy boundary.
Btg1—10 to 21 inches; gray (5Y 6/1) silty clay; weak coarse and very coarse prismatic structure parting to weak medium and coarse subangular blocky; very firm; common very fine and fine roots; few distinct gray (N 5/0) iron-depleted clay films on faces of peds; common fine and medium prominent red (2.5YR 4/6) masses of iron oxide in pores; common fine and medium prominent yellowish brown (10YR 5/4) masses of iron oxide in the matrix adjacent to pores; slightly acid; clear wavy boundary.

Btg2—21 to 35 inches; gray (5Y 6/1) silty clay loam; moderate medium and coarse subangular blocky structure; very firm; few very fine and fine roots; common distinct gray (N 6/0) iron-depleted clay films on faces of peds; many fine and medium prominent red (2.5YR 4/6) masses of iron oxide throughout; common to many fine and medium prominent brown (7.5YR 5/4) masses of iron oxide throughout; slightly acid; clear wavy boundary.
C1—35 to 51 inches; gray (5Y 5/1) silty clay loam; common fine and medium prominent strong brown (7.5YR 5/6) mottles; massive; firm; common medium prominent yellowish red (5YR 5/6) masses of iron oxide lining pores; 2 percent rock fragments; neutral; clear wavy boundary.
C2—51 to 74 inches; dark yellowish brown (10YR 4/4) silty clay; common fine and medium prominent gray (N 5/0) mottles; massive; very firm; few prominent gray (N 5/0) coats on vertical faces of peds; strongly effervescent; moderately alkaline; clear wavy boundary.
C3—74 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; common fine distinct gray (10YR 6/1) mottles; massive; firm; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 34 to 50 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 30 to 74 inches
Content of rock fragments: A horizon—0 to 2 percent; B horizon—commonly absent; C horizon—0 to 2 percent

A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 1 or 2
Texture—silt loam or silty clay loam

Btg horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, chroma of 1 or 2
Texture—silty clay loam or silty clay

C horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, chroma of 0 to 4
Texture—silty clay, silty clay loam, with strata of silt loam

Caneadea Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Glaciolacustrine sediments
Landform: Valley floor
Positions on the landform: Planar or convex flat, rise, summit and shoulder on tread
Slope: 0 to 6 percent
Adjacent soils: Canadice, Fitchville, Otego and Sebring soils
Taxonomic class: Fine, illitic, mesic Aeric Epiaqualfs

Typical Pedon

Caneadea silt loam, 0 to 2 percent slopes, about 1.5 miles northwest of Rome, in Rome Township, 3,850 feet west of the intersection of State Route 45 and Laskey Road (Township Road 546), then 210 feet north. T. 9 N., R. 4 W.

Ap1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine and medium granular structure; friable; common very fine and fine roots throughout; very strongly acid; clear smooth boundary.

Ap2—3 to 12 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate coarse granular structure; friable; common very fine and fine roots throughout; common fine and medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium prominent yellowish brown (10YR 5/8) masses of iron oxide in the matrix; very strongly acid; clear smooth boundary.

Beg—12 to 15 inches; gray (10YR 6/1) silty clay loam; weak fine subangular blocky structure; firm; common very fine and fine roots throughout; few (less than 15 percent by volume) distinct light brownish gray (10YR 6/2) clay depletions on faces of peds; many fine and medium prominent brownish yellow (10YR 6/6) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.

Bt1—15 to 20 inches; yellowish brown (10YR 5/6) silty clay; strong fine and medium subangular blocky structure; very firm; few very fine roots between peds; many prominent gray (N 6/0) iron— depleted clay films on vertical and horizontal faces of peds; many medium and coarse prominent gray (10YR 6/1) iron depletions in the matrix; strongly acid; clear wavy boundary.

Bt2—20 to 43 inches; dark yellowish brown (10YR 4/4) silty clay; strong medium and coarse angular blocky structure; very firm; few very fine roots between peds; common prominent gray (N 6/0) iron-depleted clay films on vertical and horizontal faces of peds; common fine and medium distinct gray (10YR 6/1) iron depletions in the matrix; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium black (10YR 2/1) soft iron-manganese concretions throughout; moderately acid; gradual wavy boundary.

BCt—43 to 52 inches; dark yellowish brown (10YR 4/4) silty clay; weak coarse subangular blocky structure; very firm; few prominent gray (10YR 6/1) iron-depleted clay films on vertical faces of peds; common fine and medium faint dark yellowish brown (10YR 4/6) masses of iron oxide in the matrix; few fine and medium black (10YR 2/1) soft iron-manganese concretions throughout; neutral; gradual wavy boundary.

C—52 to 80 inches; dark yellowish brown (10YR 4/4) silty clay; massive; very firm; common medium and coarse distinct gray (10YR 6/1) iron depletions in cracks; common fine and medium white (10YR 8/1) soft carbonate nodules throughout; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 26 to 60 inches
Content of rock fragments: A, B and C horizons—0 to 1 percent

Ap horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 or 3
Texture—silt loam or silty clay loam

A horizon:
Color—hue of 10YR, value of 2 or 3, chroma of 1 or 2
Texture—silt loam

Bt horizon:
Color—hue of 10YR, 2.5Y or N, value of 4 or 5, chroma of 0 to 6
Texture—silty clay or silty clay loam

C horizon:
Color—hue of 10YR, 2.5Y or N, value of 3 or 4, chroma of 0 to 4
Texture—silty clay or silty clay loam; thin strata of silt loam in some pedons

The Caneadea soils in Ashtabula County have a slightly thicker surface layer than is defined as the range for the series. This difference does not significantly affect the use or management of this soil.

Cardinal Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Glaciolacustrine sediments
Landform: Terrace
Position on the landform: Shoulder, backslope, and footslope on riser
Slope: 6 to 50 percent
Adjacent soils: Canadice, Caneadea, Darien, Fitchville, Glenford, Otego, Pierpont and Sebring soils
Taxonomic class: Fine, mixed, mesic Aquic Hapludalfs

Typical Pedon

Cardinal silt loam, 18 to 50 percent slopes, about 3.25 miles southwest of Rock Creek, in Hartsgrove Township, 6,900 feet west of the intersection of State Route 45 and Laskey Road (Township Road 546), then 250 feet north. T. 9 N., R. 4 W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many very fine to medium roots; very strongly acid; clear wavy boundary.

E—4 to 7 inches; light yellowish brown (10YR 6/4) silt loam; weak fine subangular blocky structure; friable; many very fine to medium roots; few prominent dark grayish brown (10YR 4/2) organic coats in root channels; common (less than 15 percent by volume) fine and medium faint very pale brown (10YR 7/3) clay depletions on faces of peds; very strongly acid; clear wavy boundary.

BE—7 to 13 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; friable; many very fine to medium and few coarse roots; common medium distinct strong brown (7.5YR 5/6) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.

Bt1—13 to 17 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine to medium and few coarse roots; few distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.

Bt2—17 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; strong fine and medium subangular blocky structure; firm; common very fine to medium and few coarse roots; common distinct dark yellowish brown (10YR 4/6) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.

Bt3—22 to 28 inches; dark yellowish brown (10YR 4/6) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common very fine and fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium prominent gray (10YR 6/1) iron depletions in the matrix; common fine and medium faint yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine black (10YR 2/1) hard iron-manganese oxide concretions in the matrix; moderately acid; clear wavy boundary.

Bt4—28 to 34 inches; dark yellowish brown (10YR 4/6) silty clay; strong medium and coarse subangular blocky structure; very firm; common very fine and fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium prominent gray (10YR 6/1) iron depletions in the

matrix; common fine and medium faint yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine black (10YR 2/1) hard iron-manganese oxide concretions in the matrix; moderately acid; clear wavy boundary.

BCt—34 to 43 inches; dark yellowish brown (10YR 4/6) silty clay; weak coarse subangular blocky structure parting to weak thin platy; very firm; few very fine roots; few distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds; common fine and medium prominent gray (10YR 6/1) iron depletions in the matrix; common fine and medium black (10YR 2/1) hard iron-manganese oxide concretions between peds; slightly effervescent; neutral; clear wavy boundary.

C—43 to 80 inches; yellowish brown (10YR 5/6) silty clay; many fine and medium distinct light brownish gray (10YR 6/2) irregularly shaped mottles throughout; massive; very firm; few very fine roots; many light gray (10YR 7/2) carbonate concretions throughout; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: Typically 30 to 60 inches but can range to greater than 80
Content of rock fragments: Bt and BC horizons—0 to 2 percent; C horizon—0 to 5 percent

A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—silt loam

E or BE horizon:
Color—hue of 10YR or 7.5YR, value of 5 or 6, chroma of 4 to 8
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 4 to 6
Texture—silt loam or silty clay loam in upper part; silty clay loam or silty clay in lower part

C horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, chroma of 1 to 6
Texture—silty clay loam or silty clay; strata of silt loam, fine sandy loam or loamy fine sand in some pedons

Carlisle Series

Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Woody and herbaceous organic materials
Landform: Lake plain and ground moraine
Position on the landform: Depression
Slope: Less than 1 percent
Adjacent soils: Canadice, Darien, Mill, Stanhope and Wick soils
Taxonomic class: Euic, mesic Typic Medisaprists

Typical Pedon

Carlisle muck, 0 to 1 percent slopes, about 2.7 miles southeast of Orwell, in Orwell Township, 2,045 feet west of the intersection of Moore Road (Township Road 562) and Fenton Road (Township Road 76) along Moore Road, then 147 feet south. T. 8 N., R. 4 W.

Oa1—0 to 10 inches; black (10YR 2/1) broken face and rubbed muck, very dark brown (10YR 2/2) dry; about 10 percent fiber, 2 percent rubbed; weak medium granular structure; friable; common fine and medium roots; slightly acid; clear smooth boundary.
Oa2—10 to 29 inches; very dark gray (10YR 3/1) broken face and black (10YR 2/1) rubbed muck; about 10 percent fiber, 2 percent rubbed; weak medium subangular blocky structure; friable; few fine roots; 20 percent woody fragments; slightly acid; clear smooth boundary.
Oa3—29 to 46 inches; very dark gray (10YR 3/1) broken face and black (10YR 2/1) rubbed muck; 10 percent fiber, 2 percent rubbed; massive; friable; 25 percent woody fragments; moderately acid; clear smooth boundary.
Oa4—46 to 71 inches; dark brown (7.5YR 3/2) broken face and very dark gray (N 3/0) rubbed muck, with several strata of sedimentary peat ranging from 1/4 to 3/4 inch thick and lenses of sand from 1/2 to 1 inch thick; 15 percent fiber, 5 percent rubbed; massive; friable; 5 percent woody fragments; moderately acid; abrupt smooth boundary.
Oa5—71 to 80 inches; dark gray (5Y 4/1) coprogenous earth (sedimentary peat); massive; firm; slightly acid.

Range in Characteristics

Thickness of the organic deposit: 55 to more than 80 inches
Content of woody fragments: Average 15 to 30 percent throughout the control section
Depth to bedrock: Greater than 80 inches

Surface tier:
Color—hue of 5YR, 7.5YR, or 10YR, value of 2, chroma of 1 or 2
Texture—muck

Subsurface tier:
Color—hue of 5YR, 7.5YR, 10YR, or N, value of 2 or 3, chroma of 0 to 2
Texture—muck

Bottom tier:
Color—hue of 5YR to 5Y, value of 2 to 4, chroma of 1 to 3
Texture—muck (sapric material or coprogenous earth (sedimentary peat))

Chenango Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Parent material: Glaciofluvial deposits (fig. 25)
Landform: Outwash plain, outwash terrace and kame
Position on the landform:
Outwash plain: convex flat, summit, shoulder, backslope and footslope
Outwash terrace: tread and riser
Kame: shoulder, backslope and footslope
Slope: 0 to 18 percent
Adjacent soils: Blakeslee, Colonie, Elnora, Otisville, Red Hook and Tyner soils
Taxonomic class: Loamy-skeletal, mixed, mesic Typic Dystrochrepts

Typical Pedon

Chenango gravelly loam, 2 to 6 percent slopes, about 2.75 miles southwest of West Williamsfield, in Williamsfield Township, 500 feet north of the intersection of Kiddle Road (Township Road 148) and the Ashtabula/Trumbull County line, then 600 feet west. T. 8 N., R. 2 W.

Figure 25.—Chenango soils formed in glaciofluvial parent materials. The angular sedimentary rock fragments are local in origin whereas the more rounded light colored igneous rock was transported by glaciers from Canada.

Ap—0 to 11 inches; dark brown (10YR 3/3) gravelly loam, brown (10YR 5/3) dry; moderate fine granular structure; friable; common very fine and fine roots; 25 percent rock fragments; strongly acid; abrupt wavy boundary.

Bw1—11 to 13 inches; yellowish brown (10YR 5/4) very gravelly loam; weak medium subangular blocky structure parting to weak fine granular; friable; common very fine and fine roots; many distinct dark brown (10YR 3/3) organic coats in root and worm channels; 35 percent rock fragments; moderately acid; clear wavy boundary.

Bw2—13 to 21 inches; yellowish brown (10YR 5/6) very gravelly sandy loam; moderate fine subangular blocky structure; friable; common very fine and fine roots; many distinct dark brown (10YR 3/3) organic coats in root and worm channels; 35 percent rock fragments; moderately acid; clear wavy boundary.

Bw3—21 to 31 inches; yellowish brown (10YR 5/6) very gravelly sandy loam; moderate fine and medium subangular blocky structure; friable; common very fine and fine roots; 35 percent rock fragments; moderately acid; clear wavy boundary.

Bw4—31 to 38 inches; yellowish brown (10YR5/4) very gravelly sandy loam; moderate coarse subangular blocky structure; friable; common very fine and fine roots; 50 percent rock fragments; neutral; clear irregular boundary.

BC—38 to 48 inches; brown (10YR 4/3) very gravelly sandy loam; weak fine and medium granular structure; friable; common fine and medium roots; 45 percent rock fragments; neutral; clear wavy boundary.

2C—48 to 80 inches; brown (10YR 4/3) very gravelly loamy coarse sand; single grain; loose; few very fine roots; 55 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 24 to 48 inches

Content of rock fragments: Ap horizon—10 to 30 percent; Bw horizon—15 to 55 percent; 2C horizon—30 to 70 percent

Depth to bedrock: Greater than 80 inches

Ap horizon:
Color—hue of 10YR or 7.5YR, value of 3 or 4, chroma of 2 or 3
Texture—loam, sandy loam, silt loam or their gravelly analogues

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 3 to 6
Texture—gravelly or very gravelly analogues of sandy loam or loam

2C horizon:
Color—hue of 10YR, value of 3 to 5, chroma of 2 to 4
Texture—gravelly to extremely gravelly analogues of loamy sand, loamy coarse sand, sand, or coarse sand

The Chenango soils in Ashtabula County have a slightly thicker surface layer than is defined as the range for the series. This difference does not significantly affect the use or management of this soil.

Colonie Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Parent material: Glaciolacustrine sediments and associated aeolian deposits
Landform: Aeolian dune on beach ridge on lake plain
Position on the landform: Summit, shoulder, backslope, and footslope
Slope: 2 to 18 percent
Adjacent soils: Blakeslee, Elnora, Harbor, Otisville and Tyner soils
Taxonomic class: Mixed, mesic Argic Udipsamments

Typical Pedon

Colonie loamy fine sand, 2 to 6 percent slopes, about 3 miles northeast of Kingsville, in Kingsville Township, 1,500 feet south of the intersection of Gore Road (Township Road 446) and Poore Road (Township Road 587), then 1,900 feet west. T. 13 N., R. 3 W.

Ap1—0 to 3 inches; brown (10YR 4/3) loamy fine sand, pale brown (10YR 6/3) dry; weak very fine and fine granular structure; very friable; few coarse, common medium and many very fine and fine roots; many distinct black (10YR 2/1) organic coats on faces of peds; very strongly acid; abrupt wavy boundary.
Ap2—3 to 11 inches; brown (10YR 4/3) loamy fine sand, pale brown (10YR 6/3) dry; 2 percent yellowish brown (10YR 5/6) mixing; weak very fine and fine granular structure; very friable; few very coarse, common medium and coarse and many very fine and fine roots; few distinct black (10YR 2/1) organic coats in root channels; very strongly acid; abrupt wavy boundary.
E and Bt1—11 to 27 inches; yellowish brown (10YR 5/8) fine sand; single grain; loose; few very coarse and common very fine to coarse roots; contains a few wavy discontinuous lamellae up to ¾ inch thick that are strong brown (7.5YR 5/6) loamy fine sand, massive, friable, clay bridging sand grains; strongly acid; clear wavy boundary.
E and Bt2—27 to 46 inches; light yellowish brown (10YR 6/4) fine sand; single grain; loose; common very fine to coarse roots; contains a few wavy discontinuous lamellae up to ¾ inch thick that are strong brown (7.5YR 5/6) loamy fine sand, massive, friable, clay bridging sand grains; strongly acid; clear wavy boundary.
C1—46 to 78 inches; light yellowish brown (10YR 6/4) fine sand; many medium faint dark yellowish brown (10YR 4/4) mottles; single grain; loose; few very fine to medium roots; common fine and medium distinct brown (7.5YR 4/4) masses of iron oxide throughout; strongly acid; clear wavy boundary.

C2—78 to 80 inches; dark yellowish brown (10YR 4/4) loamy sand; single grain; loose; 5 percent rock fragments; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 75 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: A, B and C horizons—0 to 5 percent

Ap or A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—commonly loamy fine sand; less commonly fine sand

Bt horizons:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 4 to 8
Texture—loamy fine sand or fine sand

C horizon:
Color—hue of 10YR, value of 4 to 6, chroma of 3 or 4
Texture—loamy sand to fine sand

The Colonie soils in Ashtabula County have a slightly coarser texture in the lower part of the substratum than is defined as the range for the series. This difference does not significantly affect the use or management of this soil.

Conneaut Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Glaciolacustrine sediments, or loess underlain by till
Landform: Lake plain
Positions on the landform: Planar or convex flat
Slope: 0 to 2 percent slopes
Adjacent soils: Elnora, Harbor, Hornell, Kingsville and Painesville soils
Taxonomic class: Fine-silty, mixed, nonacid, mesic Aeric Epiaquepts

Typical Pedon

Conneaut silt loam, 0 to 2 percent slopes, within the Conneaut City limits, about 3 miles northeast of the center of Conneaut, 300 feet south of the intersection of State Line Road and Lake Road (Township Road 517), then 150 feet west. T. 14 N., R. 1 W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

Bg1—9 to 17 inches; light brownish gray (2.5Y 6/2) silt loam; moderate medium subangular blocky structure; firm; many fine roots; many faint light brownish gray (2.5Y 6/2) silt coats on faces of peds; common prominent dark grayish brown (10YR 4/2) organic coats in root channels; many medium prominent yellowish brown (10YR 5/8) masses of iron oxide in the matrix; very strongly acid; gradual irregular boundary.

Bg2—17 to 27 inches; grayish brown (2.5Y 5/2) silt loam; moderate medium prismatic structure parting to moderate medium and coarse subangular blocky; firm; few fine roots; many faint light brownish gray (2.5Y 6/2) and gray (N 6/0) silt coats on faces of peds; many medium prominent yellowish brown (10YR 5/6) masses of iron oxide in the matrix; strongly acid; gradual wavy boundary.

2Bw1—27 to 33 inches; dark yellowish brown (10YR 4/4) silt loam; moderate coarse prismatic structure parting to weak medium and coarse subangular blocky; firm; many prominent gray (N 6/0) silt coats on faces of peds; many medium prominent

grayish brown (2.5Y 5/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/8) masses of iron oxide in the matrix; few fine black (10YR 2/1) iron-manganese oxide accumulations and concretions throughout; 3 percent rock fragments; slightly acid; diffuse wavy boundary.

2Bw2—33 to 44 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; firm; many prominent gray (N 6/0) silt coats on faces of peds; many medium distinct yellowish brown (10YR 5/8) masses of iron oxide in the matrix; 5 percent rock fragments; slightly acid; gradual wavy boundary.

2BC—44 to 52 inches; 50 percent yellowish brown (10YR 5/6) and 50 percent light gray (N 7/0) silt loam; weak coarse subangular blocky structure; firm; 5 percent rock fragments; the areas of yellowish brown color are iron accumulations and the areas of light gray color are iron depletions; neutral; gradual smooth boundary.

2C1—52 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; common medium distinct gray (10YR 6/1) mottles; massive, with weak bedding planes; firm; many fine and medium black (10YR 2/1) iron-manganese oxide on horizontal faces of bedding planes; 5 percent rock fragments; neutral; gradual wavy boundary.

2C2—70 to 80 inches; olive (5Y 5/3) silt loam; common medium prominent brown (7.5YR 4/4) mottles; massive; firm; few fine black (10YR 2/1) masses of iron-manganese oxide throughout; 5 percent rock fragments; slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Thickness of the silty upper deposit: 16 to 36 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 40 to 80 inches
Content of rock fragments: A and B horizons—0 to 4 percent; 2B horizons—2 to 10 percent; 2C horizons—3 to 10 percent

Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 1 or 2
Texture—silt loam

E horizon:
Color—hue of 2.5Y, value of 5 or 6, chroma of 2
Texture—silt loam

B and 2B horizons above 30 inches:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 1 or 2 (except one or more subhorizons have chroma of 3 or 4)
Texture—silt loam or silty clay loam

B and 2B horizons below 30 inches:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 2 to 6
Texture—silt loam or silty clay loam

2C horizon:
Color—hue of 10YR to 5Y, value of 4 or 5, chroma of 2 to 4
Texture—silt loam or silty clay loam

Darien Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Till

Landform: Ground and end moraines
Position on the landform: Planar and convex flat, summit, shoulder and backslope
Slope: 0 to 12 percent
Adjacent soils: Gageville, Mill, Pierpont, Platea and Stanhope soils
Taxonomic class: Fine-loamy, mixed, mesic Aeric Epiaqualfs

Typical Pedon

Darien silt loam, in an area of Platea-Darien silt loams, 2 to 6 percent slopes, about 0.7 mile east of New Lyme, in New Lyme Township, 1,100 feet west of the intersection of U.S. Route 6 and Lenox-New Lyme Road (County Road 21), then 550 feet north. T. 9 N., R. 3 W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, very pale brown (10YR 7/3) dry; 15 percent pale brown (10YR 6/3) mixing; weak medium and coarse granular structure; friable; common very fine and fine roots; common fine prominent dark brown (7.5YR 3/4) masses of iron oxide in the matrix; 3 percent rock fragments; strongly acid; clear wavy boundary.

BE—10 to 13 inches; pale brown (10YR 6/3) silt loam; weak medium and coarse subangular blocky structure; friable; few very fine and fine roots; few distinct dark grayish brown (10YR 4/2) organic coats in root channels; common fine and medium distinct gray (10YR 6/1) iron depletions in the matrix; many (less than 15 percent by volume) coarse and very coarse faint light brownish gray (10YR 6/2) clay depletions on faces of peds; many medium and coarse prominent strong brown (7.5YR 5/8) masses of iron oxide in the matrix; 2 percent rock fragments; strongly acid; clear wavy boundary.

Bt1—13 to 19 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium and coarse subangular blocky structure; friable; few very fine and fine roots; many discontinuous prominent gray (N 6/0) clay films on vertical and horizontal faces of peds; many medium and coarse prominent strong brown (7.5YR 5/8) masses of iron oxide in the matrix; 7 percent rock fragments; very strongly acid; clear smooth boundary.

Bt2—19 to 25 inches; dark yellowish brown (10YR 4/4) clay loam; moderate very coarse prismatic structure parting to weak medium subangular blocky; firm; very firm and brittle in some peds; few very fine and fine roots; many prominent gray (N 6/0) and common distinct light brownish gray (10YR 6/2) clay films on vertical and horizontal faces of peds; common medium and coarse distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common medium black (10YR 2/1) iron-manganese oxide throughout; 10 percent rock fragments; slightly acid; abrupt wavy boundary.

Bt3—25 to 33 inches; brown (10YR 4/3) clay loam; moderate very coarse prismatic structure parting to weak medium subangular blocky; firm; very firm and brittle in some peds; few very fine and fine roots; common prominent gray (N 6/0) clay films on vertical faces of peds and few distinct light brownish gray (10YR 6/2) clay films on horizontal faces of peds; common medium and coarse distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; 10 percent rock fragments; neutral; gradual irregular boundary.

BCt—33 to 49 inches; brown (10YR 4/3) silt loam; weak medium and coarse platy structure; firm; few prominent gray (N 6/0) iron-depleted clay films on vertical faces of peds and few distinct light brownish gray (10YR 6/2) clay films on vertical faces of peds; common medium and coarse distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium distinct light gray (10YR 7/1) carbonate threads in cracks; 12 percent rock fragments; strongly effervescent; moderately alkaline; gradual wavy boundary.

C1—49 to 64 inches; brown (10YR 4/3) channery loam; massive; firm; very few prominent gray (N 6/0) clay films on vertical faces of peds and few distinct light

brownish gray (10YR 6/2) clay films on vertical and horizontal faces of peds; common medium and coarse distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium distinct light gray (10YR 7/1) carbonate threads in cracks; 20 percent rock fragments; strongly effervescent; moderately alkaline; gradual wavy boundary.

C2—64 to 80 inches; brown (10YR 5/3) channery silt loam; massive; firm; 20 percent rock fragments; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 50 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 28 to 48 inches
Content of rock fragments: A horizon—2 to 10 percent; Bt horizon—2 to 30 percent; C horizon—10 to 55 percent

Ap or A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 1 to 3
Texture—silt loam

Bt horizons:
Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 2 to 6
Texture—clay loam, silty clay loam, silt loam or their channery analogues

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 or 4
Texture—commonly silt loam, loam, clay loam or their channery analogues; less commonly silty clay loam or very channery silt loam

Elnora Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Sandy glacial lake, eolian, and deltaic sediments
Landform: Delta, longshore bar (relict), and beach ridge on lake plain
Position on the landform: Slight rise, summit, shoulder and backslope
Slope: 1 to 5 percent slopes
Adjacent soils: Colonie, Harbor, Kingsville, Otisville, Painesville and Tyner soils
Taxonomic class: Mixed, mesic Aquic Udipsamments

Typical Pedon

Elnora loamy fine sand, 1 to 5 percent slopes, about 3.0 miles northeast of Geneva, in Geneva Township, 340 feet east of the intersection of New London Road (Township Road 217) and Myers Road (County Road 9), then 230 feet north. T. 12 N., R. 5 W.

Ap—0 to 8 inches; dark brown (10YR 3/3) loamy fine sand, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; many very fine and fine roots; 1 percent rock fragments; strongly acid; abrupt smooth boundary.

Bw1—8 to 18 inches; yellowish brown (10YR 5/8) loamy fine sand; weak fine and medium subangular blocky structure; very friable; many very fine and fine roots; few prominent dark brown (10YR 3/3) organic coats in root channels; 3 percent rock fragments; strongly acid; clear wavy boundary.

Bw2—18 to 21 inches; yellowish brown (10YR 5/6) loamy fine sand; weak fine and medium subangular blocky structure; very friable; common very fine roots; very few prominent dark brown (10YR 3/3) organic coats in root channels; common fine and medium prominent red (2.5YR 4/8) masses of iron oxide throughout; 1 percent rock fragments; strongly acid; clear wavy boundary.

C1—21 to 37 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few very fine roots; common medium and coarse distinct light brownish gray (10YR 6/2) iron depletions throughout; common fine and medium prominent reddish brown (5YR 5/4) and strong brown (7.5YR 5/6) masses of iron oxide throughout; 1 percent rock fragments; strongly acid; clear wavy boundary.
C2—37 to 52 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; many medium and coarse distinct light brownish gray (10YR 6/2) iron depletions throughout; common fine and medium prominent reddish brown (5YR 5/4) and strong brown (7.5YR 5/6) masses of iron oxide throughout; few fine and medium black (10YR 2/1) soft masses of manganese oxide throughout; 1 percent rock fragments; strongly acid; clear wavy boundary.
C3—52 to 80 inches; brown (10YR 5/3) fine sand; single grain; loose; common medium faint light gray (10YR 7/2) iron depletions throughout; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron oxide throughout; moderately acid.

Range in Characteristics

Thickness of the solum: 21 to 52 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: Ap or A horizon—0 to 1 percent; B and C horizons—0 to 3 percent

Ap or A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—loamy fine sand

B horizon:
Color—hue of 10YR, value of 5 or 6, chroma of 4 to 8
Texture—loamy fine sand or fine sand

C horizon:
Color—hue of 5YR to 10YR, value of 3 to 6, chroma of 2 to 6
Texture—loamy fine sand or fine sand

Fitchville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Glaciolacustrine sediments
Landform: Stream terrace
Position on the landform: Planar or convex flat, slight rise, summit, and shoulder on tread
Slope: 0 to 6 percent
Adjacent soils: Canadice, Caneadea, Cardinal, Glenford and Otego soils
Taxonomic class: Fine-silty, mixed, mesic Aeric Endoaqualfs

Typical Pedon

Fitchville silt loam, 0 to 2 percent slopes, about 2.25 miles northeast of Hartsgrove, in Hartsgrove Township, 800 feet south of the intersection of Laskey Road (Township Road 546) and Windsor-Mechanicsville Road (County Road 9), then 850 feet east. T. 9 N., R. 5 W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.
Bt1—7 to 15 inches; gray (10YR 6/1) silty clay loam; moderate fine and medium

subangular blocky structure; friable; common very fine and fine roots; few faint light brownish gray (10YR 6/2) clay films on faces of peds; many coarse and very coarse faint gray (10YR 6/1) clay depletions on faces of peds; many medium prominent strong brown (7.5YR 5/8) masses of iron oxide throughout; common fine black (10YR 2/1) iron-manganese oxide throughout; very strongly acid; clear wavy boundary.

Bt2—15 to 28 inches; strong brown (7.5YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; firm; common very fine and fine roots between peds; common prominent light brownish gray (10YR 6/2) clay films on faces of peds; many medium prominent gray (10YR 6/1) iron depletions throughout; many coarse and very coarse prominent gray (10YR 6/1) clay depletions on faces of peds; common fine black (10YR 2/1) iron-manganese oxide throughout; very strongly acid; clear wavy boundary.

Bt3—28 to 45 inches; dark yellowish brown (10YR 4/6) silty clay loam; weak medium and coarse subangular blocky structure; firm; few very fine roots between peds; common prominent gray (10YR 5/1) clay films on faces of peds; many medium prominent gray (10YR 6/1) iron depletions throughout; common medium and coarse prominent gray (10YR 6/1) clay depletions on faces of peds; common fine and medium distinct strong brown (7.5YR 5/6) masses of iron oxide throughout; common fine black (10YR 2/1) iron-manganese oxide throughout; strongly acid; clear wavy boundary.

BCt—45 to 53 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; firm; few very fine roots between peds; few distinct gray (10YR 6/1) clay films on vertical faces of peds; many fine and medium distinct gray (10YR 6/1) iron depletions throughout; common fine and medium distinct gray (10YR 6/1) clay depletions on vertical faces of peds; common fine and medium distinct yellowish brown (10YR 5/8) masses of iron oxide throughout; common fine black (10YR 2/1) iron-manganese oxide throughout; 1 percent rock fragments; moderately acid; clear wavy boundary.

C1—53 to 64 inches; yellowish brown (10YR 5/4) silt loam; massive; firm; many fine and medium distinct gray (10YR 6/1) iron depletions throughout; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron oxide throughout; slightly acid; clear wavy boundary.

C2—64 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; firm; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 50 to 70 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 60 to greater than 80 inches
Content of rock fragments: A and B horizons—commonly absent; C horizon—0 to 1 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 (A horizon only) or 4 (Ap horizon only), chroma of 2 (A and Ap horizon) or 3 (Ap horizon only)
Texture—silt loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 1 to 8
Texture—silt loam or silty clay loam

C horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 4 to 6
Texture—silt loam; some pedons have strata of silty clay loam

Gageville Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Till
Landform: End and ground moraine
Positions on the landform: Backslope and footslope
Slope: 18 to 50 percent slopes
Adjacent soils: Chenango, Darien, Otego, Mill, Pierpont, Platea and Red Hook soils
Taxonomic class: Fine-loamy, mixed, mesic Oxyaquic Hapludalfs

Typical Pedon

Gageville silt loam, 18 to 50 percent slopes, about 1 mile northwest of Kelloggsville, in Sheffield Township, 1,625 feet southwest of the intersection of Plymouth Ridge Road (County Road 20) and State Route 84 along Plymouth Ridge Road, then 100 feet south. T. 12 N., R. 2 W.

A—0 to 4 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine and medium granular structure; friable; few very coarse and many fine to coarse roots throughout; 3 percent rock fragments; very strongly acid; abrupt wavy boundary.

BE—4 to 10 inches; yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable; few very coarse and many fine to coarse roots throughout; common prominent brown (10YR 4/3) organic coats in root channels; few (less than 15 percent by volume) fine faint yellowish brown (10YR 5/4) clay depletions on faces of peds; 3 percent rock fragments; very strongly acid; clear wavy boundary.

Bt1—10 to 22 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; few very coarse and many fine to coarse roots throughout; few faint yellowish brown (10YR 5/6) clay films on vertical and horizontal faces of peds; very few prominent brown (10YR 4/3) organic coats in root channels; 7 percent rock fragments; strongly acid; clear wavy boundary.

Bt2—22 to 30 inches; yellowish brown (10YR 5/6) clay loam; moderate fine and medium angular and subangular blocky structure; firm; few very coarse and many fine to coarse roots throughout; few distinct yellowish brown (10YR 5/4) clay films on vertical and horizontal faces of peds; common fine and medium prominent gray (10YR 6/1) iron depletions in the matrix; common fine and medium distinct strong brown (7.5YR 5/6) masses of iron oxide in the matrix; 7 percent rock fragments; strongly acid; clear irregular boundary.

Bt3—30 to 37 inches; dark yellowish brown (10YR 4/6) clay loam; moderate fine and medium angular blocky structure; firm; common fine and medium roots throughout; many prominent gray (10YR 6/1) clay films on vertical and horizontal faces of peds; common medium prominent gray (10YR 6/1) iron depletions in the matrix; common medium faint yellowish brown (10YR 5/6) masses of iron oxide in the matrix; few fine black (10YR 2/1) iron-manganese oxide throughout; 10 percent rock fragments; moderately acid; clear wavy boundary.

BC1—37 to 47 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak coarse subangular blocky structure; firm; few fine and very fine roots throughout; very few distinct gray (10YR 6/1) clay films on vertical faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium faint yellowish brown (10YR 5/4) masses of iron oxide in the matrix; few fine black (10YR 2/1) iron-manganese oxide throughout; 10 percent rock fragments; neutral; clear wavy boundary.

BC2—47 to 56 inches; dark yellowish brown (10YR 4/4) clay loam; weak coarse

subangular blocky structure; firm; few fine and very fine roots throughout; very few distinct gray (10YR 6/1) clay films on vertical faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium faint yellowish brown (10YR 5/4) masses of iron oxide in the matrix; few fine black (10YR 2/1) iron-manganese oxide throughout; 10 percent rock fragments; slightly effervescent; slightly alkaline; clear wavy boundary.

C1—56 to 68 inches; dark yellowish brown (10YR 4/4) clay loam; massive; firm; few fine and very fine roots throughout; common medium distinct gray (10YR 6/1) iron depletions in the matrix; common medium faint yellowish brown (10YR 5/4) masses of iron oxide in the matrix; few fine dark brown (7.5YR 3/2) iron-manganese oxide throughout; 7 percent rock fragments; slightly effervescent; slightly alkaline; clear wavy boundary.

C2—68 to 80 inches; dark yellowish brown (10YR 4/4) clay loam; common medium distinct light brownish gray (10YR 6/2) and yellowish brown (10YR 5/6) mottles; massive; firm; few fine dark brown (7.5YR 3/2) iron-manganese oxide throughout; 7 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 35 to 60 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 40 to 80 inches
Content of rock fragments: A horizon—2 to 10 percent; Bt and C horizons—2 to 15 percent

A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—silt loam or loam

Bt horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—clay loam, silty clay loam, loam or silt loam

C horizon:
Color—hue of 10YR, value of 4, chroma of 4 to 6
Texture—clay loam, silty clay loam, loam or silt loam

Glenford Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Glaciolacustrine sediments
Landform: Stream terrace
Positions on the landform:
Tread: convex flat, slight rise, summit, and shoulder
Riser: shoulder, backslope, and footslope
Slope: 0 to 18 percent slopes
Adjacent soils: Cardinal, Fitchville, and Otego soils
Taxonomic class: Fine-silty, mixed, mesic Aquic Hapludalfs

Typical Pedon

Glenford silt loam, 2 to 6 percent slopes, about 2.5 miles northwest of Rock Creek, in Morgan Township, 650 feet east of the intersection of Rice Road (Township Road 114) and Riverdale Road (Township Road 69), then 2,950 feet north. T. 10 N., R. 4 W.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many very

fine and fine and common medium to very coarse roots; very strongly acid; abrupt wavy boundary.

BE—4 to 9 inches; yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable; many very fine and fine and common medium to very coarse roots; few (less than 15 percent by volume) medium distinct yellowish brown (10YR 5/4) clay depletions on faces of peds; very strongly acid; clear wavy boundary.

Bt1—9 to 15 inches; yellowish brown (10YR 5/6) silt loam; moderate medium subangular blocky structure; firm; common very fine to coarse roots; common distinct light yellowish brown (10YR 6/4) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—15 to 23 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; firm; common very fine to coarse roots; common distinct light yellowish brown (10YR 6/4) clay films on faces of peds; few fine and medium distinct light brownish gray (10YR 6/2) iron depletions throughout; common medium distinct strong brown (7.5YR 5/6) masses of iron oxide throughout; strongly acid; clear wavy boundary.

Bt3—23 to 32 inches; yellowish brown (10YR 5/4) silt loam; moderate thin platy structure; friable; few very fine to coarse roots; few distinct light yellowish brown (10YR 6/4) clay films on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) iron depletions throughout; common fine and medium black (10YR 2/1) iron-manganese oxide throughout; strongly acid; clear wavy boundary.

BC—32 to 45 inches; dark yellowish brown (10YR 4/6) silt loam stratified with fine sandy loam; weak coarse subangular blocky structure; friable; few very fine to coarse roots; few distinct light yellowish brown (10YR 6/4) clay films on faces of peds; common medium prominent light brownish gray (2.5Y 6/2) iron depletions throughout; many fine and medium distinct strong brown (7.5YR 4/6) masses of iron oxide in vertical seams; strongly acid; clear wavy boundary.

C1—45 to 59 inches; dark yellowish brown (10YR 4/4) silt loam stratified with fine sandy loam and lenses of fine sand; massive; friable; few very fine to coarse roots; many medium prominent light brownish gray (2.5Y 6/2) iron depletions throughout; common medium distinct brown (7.5YR 4/4) masses of iron oxide in vertical seams; common fine and medium black (10YR 2/1) iron-manganese oxide throughout; very strongly acid; clear wavy boundary.

C2—59 to 80 inches; dark yellowish brown (10YR 4/4) silt loam stratified with fine sandy loam and lenses of fine sand; massive; friable; many medium prominent light brownish gray (2.5Y 6/2) iron depletions throughout; very strongly acid.

Range in Characteristics

Thickness of the solum: 38 to 50 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: Commonly absent

A horizon:
Color—hue of 10YR, value of 2 or 3, chroma of 2
Texture—silt loam

Some pedons have an Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 4 to 6
Texture—silt loam or silty clay loam

C horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 3 to 6
Texture—silt loam or silty clay loam; commonly stratified with fine sandy loam or lenses of fine sand

Harbor Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Glaciolacustrine sediments underlain by till
Landform: Low beach ridge, offshore bar and delta on lake plain
Position on the landform: Slight rise, convex flat, knoll, summit, shoulder, backslope and footslope
Slope: 0 to 12 percent slopes
Adjacent soils: Colonie, Conneaut, Elnora, Kingsville, Otivsille, Painesville and Tyner soils
Taxonomic class: Coarse-loamy, mixed, mesic Aquic Hapludalfs

Typical Pedon

Harbor fine sandy loam, 0 to 3 percent slopes, about 2.1 miles northeast of Geneva, in Geneva Township, 1,150 feet south of the intersection of Maple Avenue (County Road 216) and Meyers Road (County Road 9), then 475 feet east. T. 12 N., R. 5 W.

Ap1—0 to 6 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; moderate fine and medium granular structure; friable; many very fine and fine and few medium roots; 1 percent rock fragments; strongly acid; gradual wavy boundary.
Ap2—6 to 13 inches; dark brown (10YR 3/3) fine sandy loam, pale brown (10YR 6/3) dry; weak coarse and very coarse granular structure; friable; common very fine and fine roots; common fine prominent reddish brown (5YR 4/4) masses of iron oxide in the matrix; 1 percent rock fragments; strongly acid; abrupt smooth boundary.
Bw1—13 to 19 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine and medium platy structure parting to weak fine and medium subangular blocky; very friable; common very fine and fine roots; few prominent dark brown (10YR 3/3) organic coats in root channels; common medium prominent strong brown (7.5YR 5/8) masses of iron oxide in the matrix; common fine and medium red (10R 4/6) iron concretions in the matrix; 1 percent rock fragments; strongly acid; clear wavy boundary.
Bw2—19 to 25 inches; yellowish brown (10YR 5/4) fine sandy loam; weak very fine platy structure with weak coarse subangular blocky in some parts; very friable; few very fine and fine roots; very few prominent dark brown (10YR 3/3) organic coats in root channels; common medium and coarse distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium distinct yellowish brown (10YR 5/6) and common fine prominent red (10R 4/6) masses of iron oxide in the matrix; strongly acid; clear wavy boundary.
Bw3—25 to 32 inches; light yellowish brown (10YR 6/4) loamy fine sand; weak medium and coarse subangular blocky structure; loose; few very fine roots; very few prominent dark brown (10YR 3/3) organic coats in root channels; common medium and coarse distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many medium prominent strong brown (7.5YR 5/8) masses of iron oxide in the matrix; 11 percent rock fragments; moderately acid; clear wavy boundary.
Bt—32 to 37 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few faint yellowish

brown (10YR 5/4) clay films on faces of peds; common medium and coarse distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; 1 percent rock fragments, and a thin stone line consisting of a few cobblestones, channers and flagstones at the lower boundary of this horizon; slightly acid; abrupt smooth boundary.

2BC—37 to 56 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate coarse prismatic structure parting to weak medium subangular blocky; very firm; few very fine roots; many prominent gray (N 6/0) iron-depleted coats on vertical faces of peds; many medium prominent gray (10YR 6/1) iron depletions in the matrix; common medium prominent yellowish brown (10YR 5/6) masses of iron oxide in the matrix; 5 percent rock fragments; neutral; clear wavy boundary.

2C1—56 to 74 inches; light olive brown (2.5Y 5/4) clay loam; massive; very firm; few prominent gray (N 6/0) iron-depleted coats on vertical faces of peds; common fine and medium prominent gray (10YR 6/1) iron depletions in the matrix; common fine and medium prominent yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium black (10YR 2/1) masses of iron-manganese oxide in the matrix; common fine light gray (10YR 7/1) carbonate threads throughout; 10 percent rock fragments; strongly effervescent; slightly alkaline; clear wavy boundary.

2C2—74 to 80 inches; light olive brown (2.5Y 5/4) channery silty clay loam; common fine and medium prominent gray (10YR 6/1) mottles; massive; very firm; 19 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 30 to 65 inches
Depth to till: 20 to 40 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 30 to greater than 80 inches
Content of rock fragments: Ap and Bw horizons—0 to 15 percent; Bt horizon—0 to 35 percent; 2BC and 2C horizons—2 to 35 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—fine sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 3 to 8
Texture—commonly fine sandy loam, sandy loam, loamy fine sand or loamy sand; less commonly loam or sand

Bt horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 2 to 4
Texture—fine sandy loam, sandy loam, coarse sandy loam, loam, or their channery or gravelly analogues

2C horizon:
Color—hue of 10YR to 5Y or N, value of 4 or 5, chroma of 0 to 4
Texture—clay loam, silty clay loam, loam, silt loam or their channery analogues

Holly Series

Depth class: Very deep
Drainage class: Poorly drained
Parent material: Alluvium
Landform: Flood plain

Position on the landform: Floodplain steps
Slope: 0 to 2 percent
Adjacent soils: Orrville and well drained soils with less clay in the subsoil on higher positions on the flood plain
Taxonomic class: Fine-loamy, mixed, nonacid, mesic Typic Fluvaquents

Typical Pedon

Holly silt loam, 0 to 2 percent slopes, frequently flooded, about 1.8 miles east of Johnston, In Johnston Township, in Trumbull County, Ohio, 1,980 feet east of the intersection of State Route 88 and Sodom Hutchings Road (County Road 45) along State Route 88, then 150 feet north. T. 6 N., R. 2 W.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many roots; neutral; abrupt smooth boundary.
Bg1—7 to 12 inches; dark gray (10YR 4/1) silt loam; weak medium subangular blocky structure; friable; many roots; common faint dark grayish brown (10YR 4/2) organic coats and stains in worm and root channels; common fine distinct dark yellowish brown (10YR 4/4) and few medium prominent yellowish red (5YR 4/6) masses of iron oxide in the matrix; few medium black (10YR 2/1) iron-manganese oxide stains and concretions throughout; neutral; clear smooth boundary.
Bg2—12 to 16 inches; grayish brown (2.5Y 5/2) silt loam; weak fine and medium subangular blocky structure; friable; common roots; common distinct dark grayish brown (10YR 4/2) organic coats and stains in worm and root channels; common fine prominent dark yellowish brown (10YR 4/4) and common medium prominent yellowish red (5YR 4/6) masses of iron oxide in the matrix; few medium black (10YR 2/1) iron-manganese oxide stains and concretions throughout; neutral; clear wavy boundary.
Bg3—16 to 20 inches; grayish brown (2.5Y 5/2) silt loam; weak fine and medium subangular blocky structure; friable; few roots; common distinct dark grayish brown (10YR 4/2) organic coats and stains in worm and root channels; many medium prominent yellowish brown (10YR 5/6) and few fine prominent yellowish red (5YR 4/6) masses of iron oxide in the matrix; common fine dark brown (7.5YR 3/2) iron-manganese oxide stains and concretions throughout; moderately acid; clear wavy boundary.
Bg4—20 to 27 inches; gray (5Y 5/1) silt loam; weak medium and coarse subangular blocky structure; few roots; friable; common medium prominent yellowish brown (10YR 5/6) and few medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; common fine dark brown (7.5YR 3/2) iron-manganese oxide stains and concretions throughout; moderately acid; gradual wavy boundary.
Bg5—27 to 33 inches; gray (5Y 5/1) loam; weak medium and coarse subangular blocky structure; friable; many medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; many medium dark brown (7.5YR 3/2) iron-manganese oxide stains and concretions throughout; 2 percent rock fragments; moderately acid; abrupt smooth boundary.
C1—33 to 45 inches; gray (5Y 6/1) sandy loam; massive; very friable; 2 percent rock fragments; neutral; clear wavy boundary.
C2—45 to 57 inches; dark gray (N 4/0) gravelly loamy sand; single grain; loose; 20 percent rock fragments; slightly effervescent; slightly alkaline; clear wavy boundary.
C3—57 to 68 inches; gray (N 5/0) loam; common fine and medium prominent olive gray (5Y 5/2) mottles; massive; firm; 10 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: Ap horizon—0 to 10 percent; Bg horizon—0 to 15 percent; C horizon—2 to 25 percent

A horizon:
Color—hue of 10YR, value of 4, chroma of 1 or 2
Texture—silt loam or loam

Bg horizon:
Color—hue of 10YR to 5Y or is neutral, value of 4 to 6, chroma of 0 to 2
Texture—silt loam or loam; thin subhorizons of coarser or finer textured material in some pedons

C horizon:
Color—hue of 10YR to 5Y or N, value of 3 to 6, chroma of 0 to 2
Texture—silt loam, loam, sandy loam or their gravelly analogues above 40 inches; stratified silt loam, loam, sandy loam, loamy sand, sand or their gravelly analogues; thin strata of silty clay loam in some pedons

Hornell Series

Depth class: Moderately deep
Drainage class: Somewhat poorly drained
Parent material: Till or till and residuum underlain by shale or siltstone
Landform: Till plain or lake plain
Position on the landform: Convex flat, slight rise, summit, shoulder and backslope
Slope: 0 to 6 percent
Adjacent soils: Conneaut, Darien, Elnora, Harbor and Painesville soils
Taxonomic class: Fine, illitic, acid, mesic Aeric Endoaquepts

Typical Pedon

Hornell silt loam, 2 to 6 percent slopes, about 2 miles northwest of Geneva, in Geneva Township, 2,200 feet north of the intersection of Padanaram Road (Township Road 211) and North Center Road (Township Road 216), then 530 feet east. T. 12 N., R. 5 W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, very pale brown (10YR 7/3) dry; 5 percent strong brown (7.5YR 5/6) mixing; moderate medium granular structure; friable; many very fine and fine roots; 5 percent rock fragments; strongly acid; abrupt wavy boundary.
Bw1—9 to 15 inches; strong brown (7.5YR 5/6) silty clay loam; moderate fine and medium subangular blocky structure; firm; many very fine and fine roots; common prominent light brownish gray (2.5Y 6/2) coats on vertical and horizontal faces of peds; many fine and medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; common coarse and very coarse prominent pale brown (10YR 6/3) clay depletions on vertical and horizontal faces of peds; common fine and medium distinct reddish yellow (7.5YR 6/8) masses of iron oxide in the matrix; 2 percent rock fragments; very strongly acid; clear wavy boundary.
Bw2—15 to 19 inches; strong brown (7.5YR 5/6) silty clay loam; moderate coarse prismatic structure parting to moderate fine and medium subangular blocky; firm; many very fine and fine roots; many prominent light brownish gray (2.5Y 6/2) coats on vertical and horizontal faces of peds; many fine and medium prominent light brownish gray (2.5Y 6/2) iron depletions in the matrix; common medium and

coarse prominent pale brown (10YR 6/3) clay depletions on vertical and horizontal faces of peds; common fine and medium distinct reddish yellow (7.5YR 6/8) masses of iron oxide in the matrix; 2 percent rock fragments; very strongly acid; clear wavy boundary.

2BC—19 to 31 inches; reddish yellow (7.5YR 6/8) silty clay; moderate coarse prismatic structure parting to moderate thin platy; firm; few very fine roots; many prominent gray (N 6/0) coats on vertical and horizontal faces of peds; many fine and medium prominent gray (N 6/0) iron depletions in the matrix; common medium prominent pale brown (10YR 6/3) clay depletions on vertical faces of peds; common fine and medium faint reddish yellow (7.5YR 7/8) masses of iron oxide in the matrix; 1 percent rock fragments; very strongly acid; clear wavy boundary.

2Cr—31 to 61 inches; residuum from weathered, horizontal, thin-bedded, soft shale.

2R—61 to 68 inches; consolidated, horizontal, thin-bedded, soft shale.

Range in Characteristics

Thickness of the solum: 20 to 36 inches
Depth to bedrock: 22 to 38 inches
Content of rock fragments: A horizon—0 to 10 percent; B horizon—1 to 35 percent; C horizon, if present—10 to 35 percent

Ap horizon:
Color—hue of 7.5YR to 2.5Y, value of 3 or 4, chroma of 2 or 3
Texture—silt loam or silty clay loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 2 to 8
Texture—silty clay loam, silty clay or their channery analogues

C horizon, if present:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, chroma of 2 to 8
Texture—silty clay loam, silty clay or their channery analogues

Kingsville Series

Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Glaciolacustrine sediments
Landform: Delta or offshore bar on lake plain
Positions on the landform: Concave flat and depression
Slope: 0 to 2 percent
Adjacent soils: Conneaut, Elnora, Harbor, Otisville, Painesville and Tyner soils
Taxonomic class: Mixed, mesic Mollic Psammaquents

Typical Pedon

Kingsville loamy fine sand, 0 to 2 percent slopes, about 1.5 miles northwest of Kingsville, in Kingsville Township, 1,200 feet north of the intersection of State Route 193 and U.S. Route 20 along Route 193, then 500 feet east. T. 13 N., R. 2 W.

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) rubbed and unrubbed loamy fine sand, dark grayish brown (10YR 4/2) dry; weak fine and medium granular structure; friable; common very fine and fine roots; common medium distinct brown (7.5YR 4/3) masses of iron oxide lining root channels; 1 percent rock fragments; moderately acid; abrupt smooth boundary.

Bg1—8 to 16 inches; gray (10YR 5/1) fine sand; weak medium subangular blocky structure; very friable; few very fine roots; common distinct very dark gray (10YR

3/1) organic coats lining worm channels; few medium prominent brown (7.5YR 4/4) masses of iron oxide in the matrix, and common fine prominent strong brown (7.5YR 5/6) iron oxides lining root channels; neutral; clear wavy boundary.

Bg2—16 to 30 inches; dark gray (5Y 4/1) sand stratified with loamy fine sand; weak medium subangular blocky structure; very friable; few very fine roots; few fine prominent brown (7.5YR 4/4) masses of iron oxide in the matrix; 1 percent rock fragments; neutral; clear wavy boundary.

C1—30 to 55 inches; olive gray (5Y 4/2) sand stratified with loamy coarse sand; single grain; loose; common medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; 2 percent rock fragments; slightly alkaline; clear wavy boundary.

C2—55 to 80 inches; dark gray (5Y 4/1) sand stratified with loamy fine sand; single grain; loose; common coarse prominent brown (10YR 5/3) masses of iron oxide in the matrix; 6 percent rock fragments; slightly alkaline.

Range in Characteristics

Thickness of the solum: 20 to 35 inches
Thickness of the mollic epipedon: 5 to 9 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 50 to greater than 80 inches
Content of rock fragments: A horizon—0 to 5 percent; Bg horizon—0 to 5 percent (some pedons with strata up to 4 inches thick having 30 to 60 percent); C horizon—0 to 10 percent

Ap or A horizon:
Color—hue of 10YR, value of 2 or 3, chroma of 1 or 2
Texture—commonly loamy fine sand, fine sand, loamy sand, or sand; less commonly fine sandy loam

Bg horizon:
Color—hue of 10YR to 5Y or N, value of 4 to 6, chroma of 0 to 2 with hue of 10YR, chroma of 0 to 3 with hue of 2.5Y to N
Texture—loamy fine sand, fine sand, loamy sand, sand or is stratified

C horizon:
Color—hue of 10YR to 5Y or N, value of 4 to 6, chroma of 0 to 2
Texture—loamy fine sand to loamy coarse sand, fine sand, sand or is stratified

Mill Series

Depth class: Very deep
Drainage class: Poorly drained
Parent material: Till
Landform: Ground or end moraine
Positions on the landform: Broad concave flat and swale
Slope: 0 to 2 percent
Adjacent soils: Cambridge, Darien, Pierpont, Platea and Venango soils
Taxonomic class: Fine-loamy, mixed, nonacid, mesic Aeric Epiaquepts

Typical Pedon

Mill silt loam, 0 to 2 percent slopes, about 2.3 miles southwest of Griggs Corners, in Jefferson Township, 900 feet east of the intersection of Giddings Road (Township Road 297) and Jones Road (Township Road 294), then 500 feet south. T. 11 N., R. 3 W.

Ap—0 to 11 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; common

very fine and fine roots; common medium prominent brown (7.5YR 4/4) irregular shaped masses of iron oxide throughout; few fine black (10YR 2/1) iron-manganese oxide concretions throughout; 1 percent rock fragments; moderately acid; abrupt smooth boundary.

Bg/E—11 to 19 inches; light brownish gray (10YR 6/2) silt loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; many (less than 15 percent by volume) coarse and very coarse faint light brownish gray (10YR 6/2) clay depletions on vertical and horizontal faces of peds; many fine and medium prominent yellowish brown (10YR 5/8) masses of iron oxide in the matrix; few fine dark brown (7.5YR 3/2) masses of iron-manganese oxide throughout; 1 percent rock fragments; moderately acid; gradual irregular boundary.

Bw1—19 to 28 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse prismatic structure parting to moderate medium angular blocky; firm; few very fine roots; common prominent gray (10YR 5/1) iron-depleted coats on vertical and horizontal faces of peds; common (less than 15 percent) coarse distinct light brownish gray (10YR 6/2) clay depletions on vertical faces of peds; common fine dark brown (7.5YR 3/2) slightly hard iron-manganese oxide concretions throughout; many medium black (10YR 2/1) iron-manganese oxide linings on faces of peds; 4 percent rock fragments; neutral; clear wavy boundary.

Bw2—28 to 34 inches; yellowish brown (10YR 5/6) clay loam; moderate medium and coarse subangular blocky structure; firm; few very fine roots; common prominent gray (10YR 6/1) iron-depleted coats on vertical faces of peds; common medium faint dark yellowish brown (10YR 4/6) masses of iron oxide in the matrix; common medium black (10YR 2/1) iron-manganese oxide linings on faces of peds; 2 percent rock fragments; neutral; clear wavy boundary.

Bw3—34 to 40 inches; yellowish brown (10YR 5/6) loam; moderate coarse subangular blocky structure; firm; few very fine roots; common prominent gray (10YR 6/1) iron-depleted coats on vertical faces of peds; common medium faint dark yellowish brown (10YR 4/6) masses of iron oxide in the matrix; common medium black (10YR 2/1) iron-manganese oxide accumulations on faces of peds; 4 percent rock fragments; neutral; clear wavy boundary.

BC—40 to 45 inches; reddish brown (5YR 4/4) silt loam; weak medium subangular blocky structure; friable; few prominent gray (10YR 6/1) iron-depleted coats on vertical faces of peds; common medium prominent yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common medium black (10YR 2/1) masses of iron-manganese oxide throughout; 8 percent rock fragments; slightly effervescent; slightly alkaline; gradual irregular boundary.

C1—45 to 57 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few prominent gray (10YR 6/1) iron-depleted coats on vertical faces of peds; common medium distinct brownish yellow (10YR 6/8) masses of iron oxide in the matrix; 8 percent rock fragments; slightly effervescent; slightly alkaline; gradual wavy boundary.

C2—57 to 80 inches; yellowish brown (10YR 5/4) loam; massive; friable; common medium distinct gray (10YR 6/1) iron depletions in cracks; few medium distinct brownish yellow (10YR 6/6) masses of iron oxide in the matrix; 12 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 40 to 66 inches

Depth to bedrock: Greater than 80 inches

Depth to carbonates: 30 to 62 inches

Content of rock fragments: A or Ap horizon—0 to 5 percent; Bg/E horizon—0 to 10 percent; Bw horizon—0 to 25 percent; C horizon—5 to 30 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 (A horizon only) to 5, chroma of 1 or 2
Texture—silt loam

Bg/E horizon:
Color—hue of 10YR or N, value of 4 to 7, chroma of 0 to 2
Texture—silt loam or silty clay loam

Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 7, chroma of 1 to 8
Texture—silt loam, silty clay loam, loam, clay loam or their channery analogues

C horizon:
Color—hue of 5YR to 2.5Y, value of 4 or 5, chroma of 3 or 4
Texture—silt loam, silty clay loam, loam, clay loam or their channery analogues

Mitiwanga Series

Depth class: Moderately deep
Drainage class: Somewhat poorly drained
Parent material: Till underlain by sandstone bedrock
Landform: Ground moraine
Position on the landform: Planar or convex flat, slight rise, shoulder and backslope
Slope: 0 to 6 percent
Adjacent soils: Darien, Mill and Pierpont soils
Taxonomic class: Fine-loamy, mixed, mesic Aeric Endoaqualfs

Typical Pedon

Mitiwanga silt loam, 2 to 6 percent slopes, about 0.5 mile south of Hartsgrove, in Hartsgrove Township, about 2,200 feet south of the intersection of State Route 534 and U.S. Route 6, then 520 feet west. T. 9 N., R. 5 W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many very fine and fine roots; common fine and medium black (10YR 2/1) soft manganese oxide concretions throughout; 8 percent rock fragments; strongly acid; abrupt smooth boundary.

BE—10 to 13 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; common very fine roots; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common (less than 15 percent) fine and medium distinct light brownish gray (10YR 6/2) clay depletions on vertical faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium black (10YR 2/1) soft manganese oxide concretions throughout; 8 percent rock fragments; strongly acid; clear wavy boundary.

Bt1—13 to 24 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; firm; few very fine roots between peds; common distinct light brownish gray (10YR 6/2) and few prominent gray (10YR 5/1) iron-depleted clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium distinct light brownish gray (10YR 6/2) clay depletions on vertical faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; few fine black (10YR 2/1) soft manganese oxide concretions throughout; 8 percent rock fragments; very strongly acid; clear wavy boundary.

Bt2—24 to 31 inches; dark yellowish brown (10YR 4/6) clay loam; weak coarse subangular blocky structure; firm; few very fine roots between peds; common

prominent gray (10YR 5/1) iron-depleted clay films on faces of peds; many medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium distinct light brownish gray (10YR 6/2) clay depletions on vertical and horizontal faces of peds; common medium faint yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine black (10YR 2/1) soft manganese oxide concretions throughout; 12 percent rock fragments; strongly acid; abrupt smooth boundary.

2R—31 to 32 inches; unweathered sandstone bedrock

Range in Characteristics

Thickness of the solum: 24 to 38 inches
Depth to bedrock: 24 to 38 inches
Content of rock fragments: Ap horizon—2 to 20 percent; BE horizon—2 to 25 percent; Bt horizon—2 to 30 percent

Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2 or 3
Texture—silt loam or channery silt loam

Bt horizon:
Color—hue of 10YR, value of 4 to 6, chroma of 1 to 6
Texture—silt loam, silty clay loam, clay loam, loam or their channery analogues

Orrville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Alluvium
Landform: Flood plain
Position on the landform: Floodplain step
Slope: 0 to 2 percent
Adjacent soils: Cambridge, Darien, Gageville, Mill, Pierpont and Venango soils
Taxonomic class: Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents

Typical Pedon

Orrville silt loam, 0 to 2 percent slopes, frequently flooded, about 1.2 miles west of Bristolville, in Bristol Township, in Trumbull County, Ohio, about 240 feet north of the intersection of Corey Hunt Road (County Road 233) and State Route 88 along Corey Hunt Road, then 150 feet east. T. 6 N., R. 4 W.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium and coarse granular structure; friable; many roots; 1 percent rock fragments; moderately acid; abrupt smooth boundary.

Bw—10 to 15 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; common roots; common distinct grayish brown (10YR 5/2) silt coats on faces of peds; common faint dark grayish brown (10YR 4/2) organic coats in worm and root channels; common medium faint dark grayish brown (10YR 4/2) iron depletions in the matrix; 1 percent rock fragments; strongly acid; clear smooth boundary.

Bg1—15 to 24 inches; grayish brown (10YR 5/2) silt loam with thin strata of loam; weak medium and coarse subangular blocky structure; friable; few roots; common faint dark grayish brown (10YR 4/2) organic coats and stains in worm and root channels; many medium distinct dark yellowish brown (10YR 4/4) and common medium prominent yellowish brown (10YR 5/8) masses of iron oxide in the matrix; 1 percent rock fragments; strongly acid; gradual smooth boundary.

Bg2—24 to 36 inches; grayish brown (2.5Y 5/2) silt loam with thin strata of loam; weak coarse subangular blocky structure; friable; few roots; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; 1 percent rock fragments; strongly acid; clear smooth boundary.
C1—36 to 45 inches; gray (5Y 6/1) fine sandy loam; massive; friable; common medium prominent yellowish brown (10YR 5/6) masses of iron oxide in the matrix; thin layer of dark olive gray (5Y 3/2) silt loam that has a high concentration of partially decomposed organic material consisting of twigs, leaves, and other woody fragments in the lower part; 2 percent rock fragments; moderately acid; abrupt smooth boundary.
C2—45 to 60 inches; dark gray (N 4/0) stratified sandy loam and loamy sand; single grain; loose; 2 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: Ap horizon—0 to 5 percent; Bw and Bg horizons—0 to 15 percent; Cg horizon—0 to 25 percent

Ap horizon:
Color—hue of 10YR, value of 4, chroma of 2
Texture—silt loam

Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 3 to 6
Texture—silt loam, loam or clay loam

Bg horizon:
Color—hue of 10YR, 2.5Y or N, value of 4 to 6, chroma of 0 to 6
Texture—silt loam, loam or clay loam; thin subhorizons of sandy loam or silty clay loam in some pedons

C horizon:
Color—hue of 10YR to 5Y or N, value of 4 to 6, chroma of 0 to 4
Texture—silt loam, loam, fine sandy loam or sandy loam; stratification is typical below 40 inches and range includes loamy sand and gravelly analogues; thin stony layers in some pedons

Otego Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Alluvium
Landform: Flood plain
Position on the landform: Flood plain step
Slope: 0 to 2 percent
Adjacent soils: Canadice, Caneadea, Cardinal, Darien, Fitchville and Gageville soils
Taxonomic class: Coarse-silty, mixed, mesic Fluvaquentic Dystrochrepts

Typical Pedon

Otego silt loam, 0 to 2 percent slopes, frequently flooded, about 3.5 miles north of Rock Creek, in Morgan Township, 2,400 feet west of the intersection of State Route 45 and Schweitzer Road (County Road 120), then 2,750 feet north. T. 11 N., R. 4 W.

A—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak coarse granular structure; friable; many fine to coarse roots throughout; strongly acid; clear wavy boundary.

Bw1—9 to 13 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; many fine to coarse roots throughout; many distinct brown (10YR 4/3) organic coats throughout; strongly acid; clear wavy boundary.
Bw2—13 to 18 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; common very fine to medium and very few coarse roots throughout; few distinct brown (10YR 4/3) organic coats in root channels; very strongly acid; clear wavy boundary.
Bw3—18 to 28 inches; strong brown (7.5YR 5/6) silt loam; moderate coarse subangular blocky structure; friable; common very fine to medium roots throughout; many medium prominent gray (10YR 6/1) iron depletions in the matrix; many fine and medium distinct reddish yellow (7.5YR 6/8) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.
C1—28 to 56 inches; gray (10YR 6/1) silt loam; massive; friable; few very fine and fine roots throughout; many medium prominent reddish yellow (7.5YR 6/8) and common medium prominent reddish brown (5YR 4/4) masses of iron oxide in the matrix; few fine black (10YR 2/1) masses of iron-manganese oxide in the matrix; very strongly acid; clear wavy boundary.
C2—56 to 80 inches; strong brown (7.5YR 5/8) silt loam; massive; friable; many fine and medium prominent gray (10YR 6/1) iron depletions in the matrix; common fine prominent reddish brown (5YR 4/4) masses of iron oxide in the matrix; few fine black (10YR 2/1) masses of iron-manganese oxide in the matrix; moderately acid.

Range in Characteristics

Thickness of the solum: 24 to 48 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: Above 40 inches—0 to 2 percent; below 40 inches—0 to 20 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—silt loam; thin strata of fine sandy loam or loamy fine sand below 40 inches in some pedons

C horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 1 to 8
Texture—silt loam; thin strata of fine sandy loam or loamy fine sand below 40 inches in some pedons

Otisville Series

Depth class: Very deep
Drainage class: Excessively drained
Parent material: Outwash reworked as gravelly beach deposits
Landform: Beach ridge, beach plain, and longshore bar on lake plain
Position on the landform: Summit, shoulder, backslope, and footslope
Slope: 2 to 12 percent
Adjacent soils: Chenango, Colonie, Elnora, Harbor, Kingsville, Red Hook and Tyner soils
Taxonomic class: Sandy-skeletal, mixed, mesic Typic Udorthents

Typical Pedon

Otisville very gravelly sandy loam from an area of Tyner-Otisville complex, 2 to 6 percent slopes, about 1.5 miles northeast of Kingsville in Kingsville Township, 3,100 feet southwest of the intersection of Creek Road (County Road 443) and Reed Road (Township Road 445) along Creek Road, then 1,300 feet north. T. 13 N., R. 2 W.

Ap—0 to 10 inches; brown (10YR 4/3) very gravelly sandy loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; very friable; common fine and very fine roots; 40 percent rock fragments; strongly acid; abrupt wavy boundary.

Bw1—10 to 13 inches; yellowish brown (10YR 5/4) very gravelly sandy loam; weak coarse subangular blocky structure; very friable; common fine and very fine roots; few distinct dark grayish brown (10YR 4/2) organic coats on faces of peds; 50 percent rock fragments; slightly acid; clear wavy boundary.

Bw2—13 to 23 inches; dark yellowish brown (10YR 4/4) extremely gravelly loamy coarse sand; weak fine granular structure; loose; common fine and very fine roots; few distinct dark grayish brown (10YR 4/2) organic coats on faces of peds; 70 percent rock fragments; slightly acid; clear wavy boundary.

Bw3—23 to 35 inches; brown (7.5YR 4/4) very gravelly loamy coarse sand; weak fine and very fine granular structure; loose; few very fine roots; 55 percent rock fragments; strongly acid; clear wavy boundary.

C1—35 to 50 inches; brown (10YR 4/3) very gravelly sand; single grain; loose; few very fine roots; 50 percent rock fragments; strongly acid; clear wavy boundary.

C2—50 to 80 inches; brown (10YR 4/3) very gravelly sand; single grain; loose; 50 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 30 to 36 inches

Depth to bedrock: Greater than 80 inches

Content of rock fragments: A horizon—15 to 40 percent; Bw1 horizon—20 to 60 percent; other Bw horizons—20 to 75 percent; C horizon—30 to 70 percent

A or Ap horizon:

Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3

Texture—sandy loam, loam or their gravelly or very gravelly analogues

Bw1 horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6

Texture—sandy loam, coarse sandy loam, loamy sand or their gravelly or very gravelly analogues

Other Bw horizons:

Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6

Texture—gravelly, very gravelly, or extremely gravelly analogues of loamy sand, loamy coarse sand, sand or coarse sand

C horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, chroma of 3 or 4

Texture—strata of gravelly, very gravelly or extremely gravelly analogues of loamy sand, loamy coarse sand, sand, or coarse sand

The Otisville soils in Ashtabula County have slightly more clay in the Bw1 horizon than is defined as the range for the series. However, this difference does not significantly affect the use or management of the soils.

Painesville Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Glaciolacustrine sediments and the underlying till
Landform: Lake plain
Position on the landform: Planar or convex flat
Slope: 0 to 2 percent
Adjacent soils: Conneaut, Elnora, Harbor, Hornell, Kingsville and Red Hook soils
Taxonomic class: Coarse-loamy, mixed, nonacid, mesic Aeric Epiaquepts

Typical Pedon

Painesville fine sandy loam, 0 to 2 percent slopes, about 2 miles northeast of Geneva, in Geneva Township, 1,950 feet north of the intersection of U.S. Route 20 and Meyers Road (County Road 9), and then 525 feet east. T. 12 N., R. 5 W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) fine sandy loam, gray (10YR 6/1) dry; moderate fine and medium granular structure; friable; many very fine to medium and common coarse roots throughout; common fine distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; very strongly acid; abrupt smooth boundary.

Bg—9 to 15 inches; light brownish gray (10YR 6/2) fine sandy loam; weak fine and medium subangular blocky structure; friable; many very fine to medium and common coarse roots throughout; common prominent dark grayish brown (10YR 4/2) organic coats in root channels; common medium and coarse distinct yellowish brown (10YR 5/6) and common fine and medium prominent brown (7.5YR 4/4) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.

Bw1—15 to 22 inches; yellowish brown (10YR 5/4) loamy fine sand; weak coarse subangular blocky structure; friable; common very fine to medium roots throughout; few prominent dark grayish brown (10YR 4/2) organic coats in root channels; many medium and coarse distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium distinct brown (7.5YR 4/4) and common medium and coarse distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; 2 percent rock fragments; strongly acid; clear wavy boundary.

Bw2—22 to 30 inches; dark yellowish brown (10YR 4/6) channery fine sandy loam; weak coarse subangular blocky structure; friable; few very fine and fine roots throughout; many medium and coarse distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; 15 percent rock fragments; strongly acid; clear irregular boundary.

2Bw1—30 to 43 inches; yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure; firm; few very fine roots throughout; many distinct gray (N 6/0) iron-depleted coats on faces of peds; many medium and coarse distinct gray (10YR 6/1) iron depletions in the matrix; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium black (N 2/0) masses of iron-manganese oxide in the matrix; 12 percent rock fragments; slightly acid; clear wavy boundary.

2Bw2—43 to 51 inches; dark yellowish brown (10YR 4/6) silt loam; weak very coarse prismatic structure; firm; common prominent gray (N 6/0) iron-depleted coats on vertical faces of peds; many medium and coarse prominent gray (10YR 6/1) iron depletions in the matrix; common fine and medium faint yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium black (N 2/0) masses of iron-manganese oxide in the matrix; 12 percent rock fragments; slightly acid; clear wavy boundary.

2C1—51 to 65 inches; pale brown (10YR 6/3) silt loam; massive; firm; few prominent gray (N 6/0) iron-depleted coats on vertical partings; many medium and coarse distinct gray (10YR 6/1) iron depletions in the matrix; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine and medium black (N 2/0) masses of iron-manganese oxide in the matrix; 12 percent rock fragments; neutral; clear wavy boundary.
2C2—65 to 80 inches; pale brown (10YR 6/3) silt loam; common fine and medium distinct gray (10YR 6/1) and yellowish brown (10YR 5/4) and prominent strong brown (7.5YR 5/6) mottles; massive; firm; common fine and medium prominent black (N 2/0) masses of iron-manganese oxide in the matrix; 5 percent rock fragments; strongly effervescent; slightly alkaline.

Range in characteristics

Thickness of the solum: 36 to 60 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 36 to 65 inches, or deeper
Content of rock fragments: A horizon—0 to 5 percent; B horizon—0 to 20 percent; 2B horizon—2 to 15 percent; 2C horizon—2 to 15 percent

Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 1 or 2
Texture—fine sandy loam, sandy loam, loam or loamy fine sand

B horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 1 to 6
Texture—loamy fine sand, loamy sand, fine sandy loam, sandy loam, loam or gravelly analogues

2B horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 3 to 6
Texture—silt loam and silty clay loam with thin strata of fine sandy loam, sandy loam or loam in some pedons

2C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 2 to 4
Texture—silt loam or silty clay loam

Pierpont Series

Depth class: Very deep
Drainage class: Moderately well drained
Parent material: Till
Landform: Ground or end moraine
Position on the landform: Shoulder, backslope, and footslope
Slope: 6 to 18 percent
Adjacent soils: Chenango, Darien, Gageville and Mill soils
Taxonomic class: Fine-silty, mixed, mesic Aqueptic Fragiudalfs

Typical Pedon

Pierpont silt loam, 6 to 12 percent slopes, moderately eroded, about 4 miles east of Painesville, in Perry Township, in Lake County, Ohio, 150 feet south of the intersection of River Road (County Road 100) and Blair Road (County Road 217) along Blair Road, then 300 feet east. T. 11 N., R. 7 W.

Ap—0 to 8 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; moderate medium granular structure; friable; many fine roots; 3 percent rock fragments; moderately acid; abrupt smooth boundary.

Bw1—8 to 12 inches; yellowish brown (10YR 5/4) silt loam; moderate coarse subangular blocky structure; firm; many fine roots; many faint brown (10YR 5/3) silt coats on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix beginning at 10 inches; few fine distinct brown (7.5YR 4/4) masses of iron in the matrix beginning at 10 inches; 2 percent rock fragments; very strongly acid; clear wavy boundary.

Bw2—12 to 21 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium prismatic structure parting to moderate coarse subangular blocky; firm; few fine roots; many distinct grayish brown (2.5Y 5/2) silt coats on faces of peds; common medium distinct grayish brown (10YR 5/2) iron depletions in the matrix; few fine distinct brown (7.5YR 4/4) masses of iron in the matrix; 2 percent rock fragments; very strongly acid; abrupt smooth boundary.

Bw3—21 to 24 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; few fine roots; many distinct grayish brown (2.5Y 5/2) silt coats on faces of peds; few fine distinct brown (7.5YR 4/4) masses of iron in the matrix; few fine dark manganese oxide concretions; 5 percent rock fragments; very strongly acid; abrupt smooth boundary.

Btx1—24 to 31 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak very coarse prismatic structure; very firm, brittle; few fine roots on faces of prisms; many prominent grayish brown (10YR 5/2) clay films on faces of prisms and common distinct clay films in pores; yellowish brown (10YR 5/6) rind between the clay films and interior of peds; thin common fine dark manganese oxide stains; 5 percent rock fragments; moderately acid; clear wavy boundary.

Btx2—31 to 40 inches; brown (10YR 4/3) silty clay loam; weak very coarse prismatic structure parting to weak thick platy; very firm, brittle; few fine roots on faces of prisms; many prominent dark grayish brown (10YR 4/2) clay films on faces of peds and common distinct clay films in pores; yellowish brown (10YR 5/6) rind between the clay films and interior of peds; 5 percent rock fragments; neutral; abrupt wavy boundary.

C1—40 to 44 inches; brown (10YR 4/3) silty clay loam; massive in place parting to weak thick platy rock structure; firm; many distinct grayish brown (10YR 5/2) coats; common distinct gray (10YR 5/1) carbonate coats on vertical seams; 5 percent rock fragments; slightly alkaline; gradual wavy boundary.

C2—44 to 72 inches; brown (10YR 4/3) silty clay loam; massive in place parting to weak thick platy rock structure; firm; common distinct gray (10YR 5/1) soft carbonate accumulations; 5 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 34 to 60 inches
Depth to top of fragipan: 18 to 30 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: Commonly 35 to 70 inches; deeper in some pedons
Content of rock fragments: A horizon—0 to 5 percent; BE horizon—0 to 3 percent; Bw horizon—0 to 3 percent; Btx, BC and C horizons—2 to 15 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 3 to 6
Texture—silt loam or silty clay loam

Btx horizon:
Color—hue of 10YR or 7.5YR, value of 4 or 5, chroma of 3 to 6
Texture—silty clay loam or clay loam

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 or 4
Texture—silt loam, loam, silty clay loam or clay loam

Platea Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Till
Landform: End or ground moraine
Position on the landform: Micro-high on flat summit, shoulder, backslope and footslope
Slope: 0 to 12 percent
Adjacent soils: Darien and Mill soils
Taxonomic class: Fine-silty, mixed, mesic Aeric Fragiaqualfs

Typical Pedon

Platea silt loam, 2 to 6 percent slopes, about 3 miles north of Jefferson, in Jefferson Township, about 5,500 feet west of the intersection of Clay Street (County Road 16) and State Route 46 along Clay Street, then 100 feet south. T. 11 N., R. 3 W.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium and coarse granular structure; friable; common medium and coarse and many very fine and fine roots; 1 percent rock fragments; very strongly acid; clear smooth boundary.

E—4 to 9 inches; pale brown (10YR 6/3) silt loam; weak fine and medium subangular blocky structure; friable; common very fine to coarse roots; many distinct very dark grayish brown (10YR 3/2) organic coats in root channels; common fine and medium faint light brownish gray (10YR 6/2) iron depletions in the matrix; few (less than 15 percent by volume) fine faint light brownish gray (10YR 6/2) clay depletions on faces of peds; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; 2 percent rock fragments; very strongly acid; clear wavy boundary.

Bt—9 to 16 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium and coarse subangular blocky structure; friable; few very fine to medium roots; few faint brown (7.5YR 4/4) clay films lining tubular pores; common prominent light brownish gray (2.5Y 6/2) coats on vertical and horizontal faces of peds; common fine and medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many (less than 15 percent by volume) coarse and very coarse prominent gray (5Y 5/1) clay depletions on faces of peds; yellowish red (5YR 5/6) masses of iron oxide in the matrix; 3 percent rock fragments; very strongly acid; clear irregular boundary.

Btx1—16 to 29 inches; brown (10YR 4/3) silt loam; strong very coarse prismatic structure parting to weak thick platy; very firm and brittle; few fine and medium roots between peds; many prominent gray (N 6/0) iron-depleted clay films on vertical faces of peds; common fine and medium distinct light brownish gray (2.5Y 6/2) clay depletions on vertical faces of peds; rind inside coats is strong brown (7.5YR 5/6); common medium and coarse prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; common fine black (10YR 2/1) slightly hard manganese oxide concretions throughout; 3 percent rock fragments; strongly acid grading to slightly acid; gradual wavy boundary.

Btx2—29 to 45 inches; brown (10YR 4/3) silt loam; strong very coarse prismatic structure parting to moderate medium platy; very firm and brittle; few very fine and fine roots between peds; many prominent gray (N 6/0) iron-depleted clay films on vertical faces of peds; common fine and medium distinct light brownish gray (2.5Y 6/2) clay depletions on vertical faces of peds; rind inside coats is brown (7.5YR 4/4); few fine black (10YR 2/1) slightly hard manganese oxide concretions throughout; 10 percent rock fragments; neutral; clear wavy boundary.

BC—45 to 62 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; firm; common prominent gray (N 6/0) iron-depleted clay films on vertical faces of peds; few medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine very pale brown (10YR 8/2) soft calcium carbonate concretions throughout; 5 percent rock fragments; slightly effervescent; moderately alkaline; clear wavy boundary.

C—62 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; firm; few medium distinct gray (10YR 6/1) iron depletions and yellowish brown (10YR 5/6) masses of iron oxide in the matrix; common fine very pale brown (10YR 8/2) slightly hard calcium carbonate concretions throughout; 8 percent rock fragments; strongly effervescent; moderately alkaline.

Range in characteristics

Thickness of the solum: 34 to 62 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 30 to greater than 80 inches
Depth to fragipan: 16 to 26 inches
Content of rock fragments: A horizon—0 to 3 percent; B horizon—0 to 5 percent; Btx horizon—1 to 20 percent; C horizon—5 to 35 percent

A or Ap horizon:
Color—hue of 10YR, value of 2 or 3 in A horizon and 3 or 4 in Ap horizon, chroma of 1 or 2 in A horizon and 2 or 3 in Ap horizon
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 2 to 6
Texture—silt loam or silty clay loam

Btx horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 or 5, chroma of 3 to 6
Texture—silt loam, loam, silty clay loam or their channery analogues

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 to 6
Texture—silt loam, loam, silty clay loam or their channery analogues

Red Hook Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Glaciofluvial deposits
Landform: Outwash plain or terrace
Positions on the landform:
Outwash plain: Planar or convex flat or rise
Outwash terrace: Tread
Slope: 0 to 6 percent
Adjacent soils: Blakeslee, Chenango, Otisville, Tyner and Wick soils
Taxonomic class: Coarse-loamy, mixed, nonacid, mesic Aeric Endoaquepts

Typical Pedon

Red Hook silt loam, 2 to 6 percent slopes, about 2.4 miles southeast of Wayne, in Wayne Township, 800 feet south of the intersection of Underwood Road (Township Road 143) and Kiddle Road (Township Road 148), then 1,100 feet east. T. 8 N., R. 2 W.

Ap—0 to 10 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; moderate fine and medium granular structure; friable; common very fine and fine roots throughout; 5 percent rock fragments; strongly acid; abrupt smooth boundary.

Beg—10 to 15 inches; light brownish gray (10YR 6/2) gravelly loam; weak fine and medium subangular blocky structure; friable; few very fine roots throughout; few brown (10YR 4/3) organic coats in root channels; common (less than 15 percent by volume) faint pale brown (10YR 6/3) clay depletions on faces of peds; many fine and medium prominent reddish yellow (7.5YR 6/8) and common fine and medium faint brown (10YR 5/3) and prominent red (2.5YR 4/6) masses of iron oxide throughout; 15 percent rock fragments; strongly acid; clear wavy boundary.

Bw1—15 to 25 inches; strong brown (7.5YR 5/6) loam; weak medium and coarse subangular blocky structure; friable; few brown (10YR 4/3) organic coats in root channels; many (55 percent) continuous prominent gray (10YR 6/1) iron-depleted coats on faces of peds; many (40 percent) medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; 10 percent rock fragments; moderately acid; clear wavy boundary.

Bw2—25 to 34 inches; dark yellowish brown (10YR 4/4) sandy loam; weak coarse subangular blocky structure parting to weak thin platy; friable; very few faint brown (10YR 4/3) clay films in matrix pores; common (40 percent) discontinuous distinct gray (10YR 6/1) iron-depleted coats on faces of peds; many (40 percent) fine and medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium prominent red (2.5YR 4/6) masses of iron oxide throughout; 5 percent rock fragments in the upper part and 10 percent in the lower part; strongly acid; gradual irregular boundary.

C1—34 to 48 inches; grayish brown (10YR 5/2) gravelly coarse sandy loam; common medium distinct yellowish brown (10YR 5/4) mottles; massive; loose; 20 percent rock fragments; moderately acid; clear wavy boundary.

C2—48 to 60 inches; brown (10YR 4/3) very gravelly coarse sandy loam; many medium distinct gray (10YR 6/1) mottles; massive; loose; 40 percent rock fragments; slightly acid; abrupt smooth boundary.

C’1—60 to 66 inches; gray (10YR 5/1) gravelly loamy coarse sand; common medium prominent yellowish brown (10YR 5/4) mottles; massive; loose; 30 percent rock fragments; neutral; abrupt smooth boundary.

C’2—66 to 80 inches; brown (10YR 4/3) gravelly coarse sandy loam; common medium distinct gray (10YR 6/1) mottles; massive; loose; 25 percent rock fragments; neutral.

Range in Characteristics

Thickness of the solum: 25 to 40 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: A horizon—5 to 10 percent; B horizon—10 to 40 percent; C horizon—10 to 60 percent

A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—silt loam or loam

B horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, chroma of 2 to 6
Texture—sandy loam, loam, silt loam or their gravelly or very gravelly analogues

C horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 1 to 4
Texture—sandy loam, loam or silt loam with random strata of coarser-textured material, or their gravelly or very gravelly analogues

Sebring Series

Depth class: Very deep
Drainage class: Poorly drained
Parent material: Glaciolacustrine sediments
Landform: Stream terrace
Position on the landform: Broad concave flat and depression on tread
Slope: 0 to 2 percent
Adjacent soils: Canadice, Caneadea, Fitchville, Glenford and Otego soils
Taxonomic class: Fine-silty, mixed, mesic Typic Endoaqualfs

Typical Pedon

Sebring silt loam, 0 to 2 percent slopes, about 0.3 mile northwest of Rock Creek, in Morgan Township, 3,500 feet west of the intersection of State Route 45 and Riverdale Road (Township Road 69), then 1,575 feet south. T. 10 N., R. 4 W.

Oi—0 to 1 inch; partially decomposed leaf litter.
A—1 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; many fine to coarse roots throughout; common fine threadlike red (2.5YR 4/6) oxidized rhizospheres lining pores; very strongly acid; abrupt wavy boundary.
BE—6 to 9 inches; gray (10YR 6/1) silt loam; moderate medium subangular blocky structure; friable; many fine to coarse roots throughout; few prominent dark grayish brown (10YR 4/2) organic coats in root channels; common (less than 15 percent by volume) fine and medium faint light gray (10YR 7/1) clay depletions on faces of peds; common fine prominent threadlike red (2.5YR 4/6) oxidized rhizospheres lining pores; common fine and medium prominent reddish yellow (7.5YR 6/8) and common medium distinct brown (7.5YR 5/4) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.
Bg1—9 to 15 inches; gray (10YR 6/1) silt loam; moderate fine and medium subangular blocky structure; friable; few coarse and common very fine to medium roots throughout; many distinct grayish brown (10YR 5/2) iron depleted coats on faces of peds; few distinct dark grayish brown (10YR 4/2) organic coats in root channels; common fine and medium prominent reddish yellow (7.5YR 6/8) and common fine medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.
Bg2—15 to 24 inches; gray (10YR 6/1) silt loam; strong fine and medium subangular blocky structure; friable; few very fine and fine roots throughout; many distinct grayish brown (10YR 5/2) iron depleted coats on faces of peds; few distinct dark grayish brown (10YR 4/2) organic coats in root channels; common fine and medium prominent strong brown (7.5YR 5/6) and reddish yellow (7.5YR 6/8) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.
Bg3—24 to 30 inches; gray (10YR 6/1) silt loam; moderate medium and coarse subangular blocky structure parting to weak medium platy; friable; very few very fine roots throughout; common faint gray (10YR 6/1) iron-depleted coats on vertical faces of peds; very few distinct dark grayish brown (10YR 4/2) organic coats in root channels; many fine and medium prominent reddish yellow (7.5YR 6/8) and common fine and medium distinct brown (7.5YR 5/4) masses of iron oxide in the matrix; strongly acid; clear wavy boundary.

BC1—30 to 41 inches; gray (10YR 6/1) silty clay loam; moderate coarse subangular blocky structure parting to weak thin platy; friable; very few very fine roots throughout; few distinct gray (10YR 5/1) iron-depleted coats on vertical faces of peds; many fine and medium prominent reddish yellow (7.5YR 6/8) and common fine and medium distinct brown (7.5YR 5/4) masses of iron oxide in the matrix; strongly acid; clear wavy boundary.
BC2—41 to 51 inches; gray (10YR 6/1) silt loam; weak fine prismatic structure; friable; very few very fine roots throughout in the upper part of the horizon; many fine and medium prominent strong brown (7.5YR 5/8) and distinct brown (7.5YR 5/4) masses of iron oxide in the matrix; strongly acid; clear wavy boundary.
C—51 to 80 inches; grayish brown (2.5Y 5/2) silty clay loam stratified with very fine sand; common medium and coarse yellowish brown (10YR 5/4) and many medium and coarse gray (N 6/0) mottles; massive; friable; neutral.

Range in characteristics

Thickness of the solum: 30 to 55 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: 38 to greater than 80 inches
Content of rock fragments: A horizon—commonly absent; B horizon—0 to 3 percent; C horizon—0 to 10 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 (A horizon only) or 4, chroma of 1 or 2
Texture—silt loam

B horizon:
Color—hue of 10YR, 2.5Y, or N, value of 5 or 6, chroma of 0 to 2 above 30 inches and 0 to 6 below 30 inches
Texture—silt loam or silty clay loam

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 1 to 6
Texture—silt loam or silty clay loam

This soil in Ashtabula County is a taxadjunct to the Sebring series in that it does not exhibit the morphological evidence of translocated clay to the extent necessary to substantiate an argillic diagnostic horizon needed to classify as an alfisol.

Stanhope Series

Depth class: Very deep
Drainage class: Poorly drained
Parent material: Alluvium
Landform: Flood plain
Position on the landform: Flood plain step
Slope: 0 to 2 percent
Adjacent soils: Cambridge, Chenango, Darien, Gageville, Pierpont and Wick soils
Taxonomic class: Fine-silty, mixed, nonacid, mesic Aeric Endoaquepts

Typical Pedon

Stanhope silt loam, 0 to 2 percent slopes, frequently flooded, about 3 miles northeast of Wayne, in Wayne Township, 2,225 feet west of the intersection of Creek Road (County Road 149) and Woodworth Road (Township Road 90), then 130 feet south. T. 8 N., R. 2 W.

A—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine and medium granular structure; friable; many very fine to medium roots throughout; very strongly acid; clear wavy boundary.
Bg1—5 to 10 inches; grayish brown (10YR 5/2) silt loam; weak fine subangular blocky structure; friable; common very fine to medium and few very coarse roots throughout; common (10 percent) fine and medium distinct yellowish brown (10YR 5/6) and common (15 percent) fine prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; common fine black (10YR 2/1) masses of iron-manganese oxide throughout; very strongly acid; clear wavy boundary.
Bg2—10 to 21 inches; gray (10YR 6/1) silt loam; moderate fine and medium subangular blocky structure; friable; common very fine to medium and few very coarse roots throughout; few distinct gray (10YR 6/1) iron-depleted coats on vertical faces of peds; many (40 percent) medium prominent yellowish brown (10YR 5/6) and common (10 percent) fine prominent strong brown (7.5YR 5/8) masses of iron oxide in the matrix; very strongly acid; clear wavy boundary.
Bw—21 to 40 inches; yellowish brown (10YR 5/6) silt loam; moderate coarse subangular blocky structure; friable; few very fine, fine, and very coarse roots throughout; very few prominent gray (10YR 6/1) iron-depleted coats on vertical faces of peds; many (35 percent) medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium prominent strong brown (7.5YR 5/8) masses of iron oxide in the matrix and common fine prominent red (2.5YR 4/6) masses of iron oxide accumulation lining pores; strongly acid; clear wavy boundary.
C1—40 to 48 inches; yellowish brown (10YR 5/4) stratified silt loam and silty clay loam; massive; friable; few very fine and coarse roots throughout; many (30 percent) medium distinct gray (10YR 6/1) iron depletions in the matrix; common fine and medium prominent strong brown (7.5YR 5/6) and fine prominent red (2.5YR 4/6) masses of iron oxide in the matrix; few fine dark brown (7.5YR 3/2) masses of iron-manganese oxide throughout; slightly acid; clear wavy boundary.
C2—48 to 74 inches; reddish brown (5YR 4/4) stratified silt loam and silty clay loam; many (35 percent) fine and medium prominent gray (N 6/0) and many (25 percent) medium prominent light olive brown (2.5Y 5/4) mottles; massive; firm; few fine roots throughout; common fine and medium prominent strong brown (7.5YR 5/6) masses of iron oxide in the matrix; neutral; clear wavy boundary.
C3—74 to 80 inches; greenish gray (5G 6/1) silt loam; common fine prominent strong brown (7.5YR 5/8) mottles; massive; firm; slightly acid.

Range in Characteristics

Thickness of the solum: 25 to 50 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: C horizon below 40 inches—0 to 20 percent

A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 1 to 3
Texture—silt loam

Bg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, chroma of 1 or 2
Texture—silt loam or silty clay loam

Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 3 to 6
Texture—silt loam or silty clay loam; strata of sandy loam, fine sandy loam, loamy fine sand or fine sand below 40 inches in some pedons

C horizon:
Color—hue of 5YR to 2.5Y, N, or 5G in lower parts, value of 4 to 6, chroma of 0 to 6
Texture—silt loam or silty clay loam; strata of sandy loam, fine sandy loam, loamy fine sand or fine sand below 40 inches in some pedons

Towerville Series

Depth class: Moderately deep
Drainage class: Moderately well drained
Parent material: Till or till and residuum from the underlying interbedded bedrock
Landform: End or ground moraine
Positions on the landform: Shoulder, backslope and footslope
Slope: 6 to 18 percent
Adjacent soils: Darien, Gageville and Mill soils
Taxonomic class: Fine-loamy, mixed, mesic Aquic Dystrochrepts

Typical Pedon

Towerville silt loam, 12 to 18 percent slopes, about 1.75 miles southeast of Cork, in Trumbull Township, 800 feet south of the intersection of Leslie Road (Township Road 522) and State Road (Township Road 74), then 4,600 feet east. T. 10 N., R. 5 W.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; common very coarse and many very fine to coarse roots throughout; 5 percent rock fragments; very strongly acid; abrupt wavy boundary.
Bw1—5 to 11 inches; yellowish brown (10YR 5/6) silt loam; weak fine and medium subangular blocky structure; friable; common very coarse and many very fine to coarse roots throughout; few prominent very dark grayish brown (10YR 3/2) organic coats on vertical faces of peds; 5 percent rock fragments; very strongly acid; clear wavy boundary.
Bw2—11 to 17 inches; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; common very coarse and many very fine to coarse roots throughout; common fine and medium distinct strong brown (7.5YR 5/6) masses of iron oxide in the matrix; 11 percent rock fragments; very strongly acid; clear wavy boundary.
Bw3—17 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure parting to weak thin platy; firm; common very fine to medium roots throughout; few distinct light yellowish brown (10YR 6/4) coats on vertical faces of peds; common fine and medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine and medium distinct yellowish brown (10YR 5/6) masses of iron oxide in the matrix; 12 percent rock fragments; very strongly acid; clear wavy boundary.
2BC—22 to 28 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium platy structure; firm; few very fine roots throughout; many fine and medium distinct gray (10YR 6/1) iron depletions in the matrix; many fine and medium distinct brown (7.5YR 5/4) masses of iron oxide in the matrix; 14 percent rock fragments; very strongly acid; clear wavy boundary.
2C—28 to 32 inches; yellowish brown (10YR 5/4) channery silty clay loam; massive; firm; many fine and medium distinct gray (10YR 6/1) iron depletions in the matrix; many fine and medium distinct brown (7.5YR 5/4) masses of iron oxide in the matrix; 18 percent rock fragments; very strongly acid; abrupt wavy boundary.
2Cr—32 to 35 inches; weathered siltstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: A horizon—1 to 15 percent; Bw horizon—1 to 25 percent; 2BC and 2C horizons—10 to 40 percent

A horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 10YR or 7.5YR, value of 4 to 6, chroma of 3 to 6
Texture—silt loam, silty clay loam or their channery analogues

2C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, chroma of 2 to 6
Texture—silt loam, silty clay loam or their channery or very channery analogues

Tyner Series

Depth class: Very deep
Drainage class: Excessively drained
Parent material: Beach deposits
Landform: Beach ridge, beach plain, or longshore bar on lake plain
Position on the landform: Summit, shoulder, backslope and footslope
Slope: 2 to 6 percent
Adjacent soils: Chenango, Colonie, Elnora, Harbor, Kingsville, Otisville, Painesville and Red Hook soils
Taxonomic class: Mixed, mesic Typic Udipsamments

Typical Pedon

Tyner loamy sand, from an area of Tyner-Otisville complex, 2 to 6 percent slopes, about 1.4 miles east of North Kingsville in Kingsville Township, 5,000 feet southwest of the intersection of Creek Road (County Road 443) and Reed Road (Township Road 445) along Creek Road, then 2,085 feet north. T. 13 N., R. 2 W.

Ap—0 to 12 inches; dark brown (10YR 3/3) loamy sand, pale brown (10YR 6/3) dry; 10 percent yellowish brown (10YR 5/6) mixing; weak fine and medium granular structure; very friable; many fine and very fine roots; 2 percent rock fragments; strongly acid; abrupt wavy boundary.
Bw1—12 to 20 inches; brown (7.5YR 5/4) loamy sand; weak medium subangular blocky structure; very friable; common fine and very fine roots; few distinct dark brown (10YR 3/3) organic coats on faces of peds; 5 percent rock fragments; strongly acid; clear wavy boundary.
Bw2—20 to 29 inches; brown (7.5YR 4/3) loamy sand; weak medium subangular blocky structure; very friable; few very fine roots; common medium distinct brown (7.5YR 5/4) masses of iron oxide in the matrix; 2 percent rock fragments; strongly acid; clear irregular boundary.
Bw3—29 to 36 inches; brown (7.5YR 4/3) sand with thin bands of brown (7.5YR 5/4) loamy sand; weak coarse subangular blocky structure; very friable; few very fine roots; 2 percent rock fragments; strongly acid; clear irregular boundary.
C—36 to 80 inches; dark yellowish brown (10YR 4/4) sand with thin strata of fine sand and thin strong brown (7.5YR 5/6) bands of loamy sand; single grain; loose; 2 percent rock fragments; moderately acid.

Range in Characteristics

Thickness of the solum: 36 to 50 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: A and B horizons—0 to 10 percent; C horizon—0 to 2 percent

Ap horizon:
Color—hue of 10YR, value of 3 or 4, chroma of 3
Texture—loamy sand or loamy fine sand

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, chroma of 3 to 6
Texture—coarse sand, medium sand, fine sand, loamy sand and loamy fine sand

C horizon:
Color—hue of 10YR, value of 4 or 5, chroma of 2 to 4
Texture—coarse sand, medium sand, strata of fine sand, bands of loamy sand

Venango Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Parent material: Till
Landform: Ground or end moraine
Position on the landform: Planar or convex flat, summit, shoulder, and backslope
Slope: 0 to 6 percent
Adjacent soils: Cambridge, Chenango, Mill, Red Hook, Stanhope and Wick soils
Taxonomic class: Fine-loamy, mixed, mesic Aeric Fragiaqualfs

Typical Pedon

Venango silt loam, 0 to 2 percent slopes, about 2.4 miles southeast of Andover, in Andover Township, 2,225 feet north of the intersection of Pymatuning-Lake Road (County Road 274) and Marvin Road (Township Road 269), then 1,250 feet east. T. 9 N., R. 1 W.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine and medium granular structure; friable; 2 percent rock fragments; extremely acid; abrupt smooth boundary.
E—9 to 13 inches; pale brown (10YR 6/3) silt loam; weak fine and medium subangular blocky structure; friable; few (less than 15 percent by volume) medium faint light brownish gray (10YR 6/2) clay depletions on faces of peds; few fine faint light yellowish brown (10YR 6/4) masses of iron oxide in the matrix; 2 percent rock fragments; very strongly acid; clear wavy boundary.
Bw1—13 to 17 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; firm; common distinct light brownish gray (10YR 6/2) silt coats on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions in the matrix; common fine distinct strong brown (7.5YR 5/8) masses of iron oxide in the matrix; 4 percent rock fragments; strongly acid; clear smooth boundary.
Bw2—17 to 21 inches; yellowish brown (10YR 5/4) loam; weak medium and coarse subangular blocky structure; firm; many prominent pale brown (10YR 6/3) and light brownish gray (2.5Y 6/2) silt coats on faces of peds; few medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; few medium distinct strong brown (7.5YR 5/8) masses of iron oxide in the matrix; 4 percent rock fragments; very strongly acid; abrupt irregular boundary.

Btx1—21 to 41 inches; olive brown (2.5Y 4/4) loam; weak very coarse prismatic structure parting to weak thick platy; very firm and brittle; few prominent gray (5Y 5/1) iron-depleted clay films on vertical faces of peds; many prominent light brownish gray (2.5Y 6/2) silt coats and sand coats on faces of peds; strong brown (7.5YR 5/8) rind along the outer edge of the prisms; common medium black (10YR 2/1) masses of iron-manganese oxide in the matrix; 4 percent rock fragments; very strongly acid; gradual smooth boundary.

Btx2—41 to 46 inches; olive brown (2.5Y 4/4) loam; weak very coarse prismatic structure; very firm and brittle; few prominent gray (5Y 5/1) iron-depleted clay films on vertical faces of peds; common distinct light brownish gray (2.5Y 6/2) silt coats and sand coats on vertical faces of peds; 4 percent rock fragments; strongly acid; clear wavy boundary.

C—46 to 80 inches; light olive brown (2.5Y 5/4) loam; massive; firm; few prominent gray (5Y 5/1) iron-depleted clay films in vertical cleavage in till; few fine black (10YR 2/1) masses of iron-manganese oxide in the matrix; 10 percent rock fragments; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of solum: 40 to 55 inches
Depth to fragipan: 18 to 26 inches
Depth to carbonates: 36 to greater than 80 inches
Depth to bedrock: Greater than 80 inches
Content of rock fragments: A horizon—2 to 10 percent; Bw horizon—2 to 25 percent; Btx horizon—4 to 15 percent; C horizon—10 to 15 percent

A or Ap horizon:
Color—hue of 10YR, value of 3 (A horizon only) or 4 (Ap horizon only), chroma of 2 or 3
Texture—silt loam

Bw horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, chroma of 2 to 8
Texture—loam, silt loam, clay loam or their channery analogues

Btx horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 4 to 6
Texture—loam or silt loam

C horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, chroma of 3 or 4
Texture—loam or silt loam

Wick Series

Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Alluvium
Landform: Flood plain
Position on the landform: Flood plain step
Slope: 0 to 2 percent
Adjacent soils: Carlisle, Chenango, Red Hook, Stanhope and Willette soils
Taxonomic class: Fine-silty, mixed, nonacid, mesic Typic Endoaquepts

Typical Pedon

Wick silt loam, 0 to 2 percent slopes, frequently flooded, about 1.6 miles east of

Wayne, in Wayne Township, 3,275 feet east of the intersection of State Route 322 and Hayes Road (County Road 147), then 800 feet north. T. 8 N., R. 2 W.

A1—0 to 4 inches; dark gray (10YR 4/1) silt loam, gray (10YR 6/1) dry; moderate fine and medium granular structure; friable; many very fine to medium roots throughout; common fine and medium prominent dark reddish brown (2.5YR 3/4) and dark red (2.5YR 3/6) rhizospheres; strongly acid; clear wavy boundary.

A2—4 to 8 inches; dark gray (10YR 4/1) silty clay loam, gray (10YR 6/1) dry; weak coarse granular structure; friable; many very fine to medium roots throughout; common fine and medium prominent dark reddish brown (2.5YR 3/4) and dark red (2.5YR 3/6) rhizospheres; strongly acid; clear wavy boundary.

Bg1—8 to 18 inches; gray (10YR 5/1) silt loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout; common fine and medium prominent dark red (2.5YR 3/6) masses of iron oxide accumulation lining root channels, and common medium distinct yellowish brown (10YR 5/4) masses of iron oxide in the matrix oriented around root channels; moderately acid; clear wavy boundary.

Bg2—18 to 36 inches; gray (N 5/0) silt loam; weak coarse subangular blocky structure; friable; common very fine and fine roots throughout; common fine and medium prominent dark red (2.5YR 3/6) masses of iron oxide accumulation lining root channels, and common medium prominent yellowish brown (10YR 5/6) masses of iron oxide in the matrix oriented around root channels; moderately acid; clear wavy boundary.

C1—36 to 50 inches; dark greenish gray (5G 4/1) silt loam; massive; friable; very few very fine roots throughout; few fine prominent strong brown (7.5YR 5/6) masses of iron oxide accumulation lining root channels, and few fine and medium prominent yellowish brown (10YR 5/4) masses of iron oxide in the matrix oriented around root channels; moderately acid; abrupt wavy boundary.

C2—50 to 53 inches; dark gray (N 4/0) sandy loam; massive; very friable; 11 percent rock fragments; moderately acid; abrupt wavy boundary.

C3—53 to 77 inches; gray (N 5/0) silty clay loam stratified with light gray (N 6/0) fine sandy loam; massive; friable; 1 percent rock fragments; slightly acid; clear wavy boundary.

C4—77 to 80 inches; gray (N 5/0) silt loam; massive; friable; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: Greater than 80 inches
Depth to carbonates: Greater than 80 inches
Content of rock fragments: Cg horizon—0 to 3 percent, with 0 to 25 percent in coarser-textured strata

A horizon:
Color—hue of 7.5YR to 2.5Y, value of 3 to 5, chroma of 1 to 4
Texture—silt loam or silty clay loam

Bg horizon:
Color—hue of 10YR to 5Y or N, value of 4 to 6, chroma of 0 to 2
Texture—silt loam or silty clay loam

C horizon:
Color—hue of 10YR to 5Y, 5G or N, value of 4 to 6, chroma of 0 to 2
Texture—silt loam or silty clay loam; below 40 inches some pedons have strata of silty clay, loam, fine sandy loam, sandy loam, loamy sand or their gravelly analogues

Willette Series

Depth class: Very deep
Drainage class: Very poorly drained
Parent material: Organic deposits underlain by glaciolacustrine sediments
Landform: Till plain and lake plain
Position on the landform: Depression
Slope: Less than 1 percent
Adjacent soils: Canadice, Caneadea, Darien, Fitchville, Mill and Sebring soils
Taxonomic class: Clayey, illitic, euic, mesic Terric Medisaprists

Typical Pedon

Willete muck, 0 to 1 percent slopes, about 3.2 miles southeast of Orwell, in Orwell Township, 660 feet south of the intersection of Fenton Road (Township Road 76) and Finlaw Road (Township Road 77) along Fenton Road, then 2,545 feet west. T. 8 N., R. 4 W.

Oap—0 to 7 inches; black (10YR 2/1) broken face and rubbed muck, very dark grayish brown (10YR 3/2) dry; about 5 percent fiber, 2 percent rubbed; moderate very fine and fine granular structure; very friable; few medium and common very fine and fine roots; 3 percent coarse woody fragments; strongly acid; clear smooth boundary.

Oa2—7 to 12 inches; black (10YR 2/1) broken face and rubbed muck; about 5 percent fiber, 2 percent rubbed; weak medium and coarse subangular blocky structure; friable; common very fine roots; 2 percent coarse woody fragments; strongly acid; clear wavy boundary.

Oa3—12 to 19 inches; black (10YR 2/1) broken face, very dark brown (10YR 2/2) rubbed muck; about 5 percent fiber, 2 percent rubbed; weak medium and coarse angular blocky and subangular blocky structure; friable; common very fine roots; dark reddish brown (5YR 3/2) ped surfaces; 5 percent coarse woody fragments; strongly acid; abrupt smooth boundary.

Oa4—19 to 22 inches; very dark gray (10YR 3/1) broken face and rubbed muck; about 5 percent fiber, 2 percent rubbed; weak medium and thick platy structure; friable; few very fine roots; 10 percent coarse woody fragments; 10 percent mineral material; strongly acid; abrupt smooth boundary.

2C1—22 to 35 inches; gray (10YR 5/1) silty clay; massive; very firm; common medium prominent yellowish brown (10YR 5/6) masses of iron oxide in the matrix; yellowish red (5YR 5/8) masses of iron oxide in root channels; moderately acid; clear smooth boundary.

2C2—35 to 46 inches; gray (N 5/0) silty clay; massive; very firm; slightly effervescent; slightly alkaline; clear smooth boundary.

2C3—46 to 80 inches; gray (N 5/0) silty clay loam; massive; very firm; dark gray (5Y 4/1) slickensides; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the organic deposit: 19 to 44 inches
Depth to carbonates: 30 to greater than 80 inches
Depth to bedrock: Greater than 80 inches
Content of woody fragments in organic deposit: 0 to 10 percent

Surface tier:
Color—hue of 10YR, value of 2, chroma of 1
Texture—muck

Subsurface tiers:
Color—hue of 7.5YR or 10YR, value of 2 or 3, chroma of 1 or 2
Texture—muck

Bottom tier:
Color—hue of 7.5YR or 10YR, value of 3, chroma of 1 or 2
Texture—muck

2C horizon:
Color—hue of 10YR to 5Y or N, value of 5 or 6, chroma of 0 or 1
Texture—silty clay loam or silty clay

Formation of the Soils

Soils are three dimensional natural bodies of mineral and organic materials capable of supporting plant growth. This section identifies the major factors of soil formation and briefly describes their influences to effect soil formation and discusses the general processes of soil formation.

The nature of the soil at a specific site is the result of intricate interactions of soil forming factors and processes. Distinctiveness of soil horizons generally diminishes with increases in depth, where at some point, the identity of soil transitions to the identity of geologic materials.

Factors of Soil Formation

Soils are the cumulative product of independent soil-forming factors acting upon both organic and mineral parent materials accumulated by geologic processes. Soil formation proceeds as progressive stages. The five major factors of soil formation are parent material, climate, relief, living organisms, and time.

Climate and living organisms, particularly vegetation and microorganisms, are the active forces in soil formation. They act on the parent material that has accumulated through the weathering of rocks and slowly change it to a natural body that has genetically related horizons. Their effect on the parent material is modified by relief and by the length of time the parent material has been acted upon.

The relative importance of each factor differs from place to place. In some places one factor dominates and determines most of the soil properties. Mostly, however, the interaction of all five factors determines the distinct features that form and thus characterize the soil in a given place so that few generalizations can be made regarding the effects of any one factor unless conditions are specified for the other four. Changes that occur to parent materials as they become true soils and in soils as they develop distinct attributes are of four basic kinds: additions, removals, transfers, and transformations.

Parent Material

The beginning material of soil is non-soil, and is called parent material. Parent material is the unconsolidated mineral or organic material in which soils form. The physical, chemical, and mineralogical composition of the parent material is influenced by its origin. Parent material affects the kind of soil profile that is formed, and in extreme cases, determine it almost entirely. The soils of Ashtabula County formed in several kinds of parent material, mostly mineral but some organic. The parent material includes glacial till, glacial-lake beach ridge deposits, glacial outwash, lacustrine sediments, residuum of sedimentary bedrocks, recent alluvium, and organic deposits. Parent material dominantly contributes the texture of the soil.

Glacial till is an extensive parent material of the soils in the County. Till varies in particle-size composition and densities from place to place. The soils formed in this parent material usually have a moderately fine textured subsoil. Pierpont and Darien are examples of soils formed in glacial till. A few soils in the county formed in thin

deposits of till underlain by bedrock. Mitiwanga and Hornell soils are examples of thinner soils underlain by bedrock.

Beach ridges formed along edges of glacial lakes in the county. The soils formed in these deposits generally have a moderately coarse or coarse textured subsoil. Elnora and Otisville soils formed in these deposits.

Outwash sand and gravel, or glaciofluvial deposits, occur as variably stratified deposits in the county. Some of this coarse material has a finer textured loamy outwash in the upper part. Braceville and Tyner soils formed in glacial outwash.

Areas of lacustrine deposits consisting of loamy to clayey sediments deposited in post-glacial lake basins are in the Grand River system. Lacustrine deposits, which consist of silty and clayey sediments are reflected in the moderately fine textured and fine textured subsoil of Fitchville and Caneadea soils.

Organic matter sediments accumulated as trees, grasses and sedges died and settled to the bottom in shallow lakes. Carlisle and Willette soils formed in these partially decomposed remains of plants. They persist in depressions and drainageways in a few scattered areas where the water table is high so that they are protected from rapid and total decomposition.

Where the bedrock is exposed, either by glaciation, erosion, or merely never having been covered by unconsolidated material, soils are usually slower to form. Soft siltstone and shale is relatively easy to weather into unconsolidated parent materials. In places, usually along lower reaches of streams, outcrops of shale occur as the lowest and oldest bedrock formation exposed to the surface.

Strong winds picked up calcareous silt and clay from broad floodplains and drained lake basins, such as that of the Mississippi River and more local ones, and deposited it across the landscape. These eolian deposits, called loess, somewhat smoothed the irregular relief of the glaciate landscape.

The alluvial sediments deposited by water is characterized by being old or recent. Old alluvium was deposited during or soon after the glacier receded by melting. Since the climate has changed, the old alluvial floodplains are now terraces that are uplands above modern floodplains. Time has allowed soil forming changes that distinguish soils such as Fitchville that formed in old alluvium from soils such as Orrville that formed in recent alluvium.

Deposition of alluvium is an active process in floodplains. Alluvium is stratified according to the volume and energy of the water flow and the variety of material kinds and sizes being transported.

Recent alluvium is one of the youngest parent materials in the county. These materials are still accumulating as fresh sediments that are being added periodically by overflow of streams. The sediments are dominantly from the surface layer of the higher lying upland soils and are characteristically fertile. Otego and Wick soils formed in alluvium.

Climate

Climate under which the soil material has accumulated and existed since accumulation is an active soil-forming factor. Climate strongly influences the rate of chemical and physical weathering. The soil profile is subject to the greatest range of extremes of elements of weather at the surface of the soil which is in contact with the atmosphere. Thus the greatest influence of climate as a soil-forming factor is exhibited in the uppermost part of the soil profile.

Soil formation progresses slowly where the soil is generally uniform in being saturated, dry or cold. The climate in Ashtabula County is uniform enough that it has not significantly contributed to differences among the soils. The climate has been favorable to physical change and chemical weathering of parent materials and to

biological activity. The climate was largely responsible for determining the kind of prehistoric vegetation in the area which was dominantly hardwood trees.

The amount of moisture, the length of the growing season, and the prevailing temperatures during the growing season affect the amount of vegetation produced, which is the main source of organic matter in the soil. These climatic factors also directly affect the activity of the microorganisms that convert organic matter into humus. The rainfall has been adequate for percolating water to leach carbonates to a moderate depth in soils such as Darien. The frequency of rainfall caused wetting and drying cycles favorable to the translocation of clay minerals and formation of soil structure, as in Chili and Darien soils for example.

The range of temperature variations has favored both physical change and chemical weathering of parent material. Freezing and thawing contribute to the formation of soil structure. Warm temperatures in summer promote chemical reactions in the weathering of primary minerals. Rainfall and temperature have been conducive to plant growth to the extent that organic matter had accumulated in the topsoil of all soils in the county. Differences in relief have slightly contributed to minor differences in local microclimates of some small areas.

Wind and water elements of the climate can erode, transport, and deposit exposed topsoils that results in gradual thinning of topsoils in some areas and thickening them in other areas.

Living Organisms

Plants and animals live on and in the soil and exert an active influence in soil formation. Along with climate, living organisms, including plants, animals, insects, earthworms, micro-organisms and fungi, exert their strongest influence upon the uppermost part of the soil profile. The most distinctive horizonization occurs generally where these greatest extremes in temperature, moisture, plant and animal influence, and erosion and deposition and related influences, act upon the parent material.

At the time the county was settled, the vegetation was predominantly hardwood forest of dominantly beach, maple, oak, hickory and ash. Swamp and low-lying areas were forested with species mainly of maple, beech, elm, swamp white oak, pin oak, and cottonwood. Grassy clearings occurred on the marshy openings in the poorly drained swales.

Soils that formed in forested areas are subject to acid leaching. As a result, the subsoil is lower in exchangeable bases than the substratum. Usually these soils are generally acid and moderate or low in natural fertility. They include the Pierpont and Darien soils. In the swales and low-lying areas, there is a greater accumulation of organic matter where the water table is high for longer periods of time. The accumulation of organic matter darkens the mineral parent material and one dark colored soil is Kingsville.

Small animals, insects, worms, fungi and bacteria in the soil through life activities mix and contribute organic matter to the soil. Earthworms, burrowing insects, moles, and other animals that live in the soil burrow and mix soil materials and generally make it more permeable. Some microorganisms fix nitrogen from the air into a form useable by plants and others help decompose plant tissue into humus, thus releasing nutrients that plants utilize. Infiltration of water into the soil at the surface and percolation of water through the soil is generally improved by the beneficial impacts of plant and animals on structure and in channel and pore space.

The activities of man also affect the soil. He drains some areas, irrigates some, and removes and relocates soil material in construction and mining projects. These disturbances have an immediate effect upon both the rate and direction of soil-forming processes. They have become a major influence in soil formation in recent times as technology enables larger ambitions. Through man's management of soils

for increased crop production and construction and mining, the natural soil-water relationships that existed for thousands of years have been changed in many places.

The application of lime, fertilizer, and other chemicals and amendments changes the chemistry of the soils and affects other properties such as structure. Soils have relatively fragile beneficial attributes for continued crop production and utilizing best suited soil conserving practices is promoted to conserve the soil resources. Conservation tillage practices contribute to improving soils under cultivation. Soils should also be managed to prevent off-site damage from mining and construction activities. Udorthents is an example of soils significantly altered through use and management by man.

Relief

Relief is the collective inequalities of elevation of a land surface. It is the shape and gradient configuration of the land surface. In Ashtabula County the steepest soils are in areas of the dissection caused by the major streams and drainageways. Most of the county is nearly level to sloping. Relief tends to modify the effects of the active factors of climate and plant and animal life because of its influence on the soil-water status.

Relief can account for the formation of different soils from the same kind of parent material. The presence or absence of a seasonal high water table is largely determined by relief. Relief also influences both geologic and accelerated erosion rates. Most of the more poorly drained soils, such as the poorly drained Sebring soils, are on flats and in depressions. The somewhat poorly drained Darien soils formed in areas where runoff was slow or medium. Soils on hillsides generally are drier than those in adjacent depressions because some water runs off the hillsides and collects in the depressions. The moderately well drained Cardinal soils are generally formed where the relief was steep enough to allow rapid runoff.

Time

Time is needed for the other soil forming factors to produce their effects of converting geologic materials into soils. Time is always required for development of distinct soil horizons. Soils that formed in recent alluvium, for example, Stanhope and Wick soils, have horizons that are not distinctly developed or expressed and are regarded as young soils.

The length of time that a parent material has been exposed to the vegetation and climate factors of soil formation is reflected in the soil profiles. The influence of time on soil formation is affected by relief and nature of the parent material. If the parent material weathers slowly, the profile is formed slowly. If slopes are steep and soil is eroded almost as fast as it forms, no distinct horizons form.

Mature soils can develop where land surfaces are more stable. The age of a soil is indicated to some extent by the degree of profile development. In general, the relative maturity of a soil is described in terms of the changes that have occurred to the parent material and the degree of horizon development rather than in terms of years. Soils that show moderate or strong degrees of horizon development are considered mature and therefore are relatively old also in terms of years.

A relatively long time is required for the development of strong evidence of extensive influence of many soil-forming processes. In terms of geologic age, the soils of the county have been developing for a relatively short period of time. This accounts for the relatively shallow depth of leaching and the slightly acid or neutral reaction in many of the soils.

Processes of Soil Formation

All the factors of soil formation influence the processes of soil development. The four main processes responsible for soil development are additions, removals, transfers, and transformations. Some of these promote horizon differentiation, but others tend to retard differentiation or obliterate existing differences.

The processes of soil formation have effectively altered the uppermost parent materials of the stable landscape positions in the county into distinguishable soil profiles. In contrast, the parent material on flood plains has been only slightly modified due to frequent deposits of fresh sediment that interrupts the progression of soil forming processes. Soils on floodplains, such as Stanhope and Wick soils exhibit only minor changes or minimum effects of soil formation processes.

The formation of a succession of layers, or horizons, in soils in Ashtabula County is the result mainly of one or more of the following processes: the accumulation of organic matter; the leaching of carbonates and other soluble minerals; the chemical breakdown, chiefly through hydrolysis of primary minerals into silicate clay minerals; the translocation of silicate clays and probably some silt from upper horizons to lower ones; and the reduction and transfer of iron.

In this county the most significant addition to the soil is organic matter to the upper part. Some organic matter has accumulated in most of the soils of the county. Soils that have high water tables usually have relatively more organic matter and/or a thick, dark surface layer because the rate of accumulation exceeded that of decomposition. A surface layer that is high in organic matter content usually has good structure and has a high base saturation. A Kingsville soil is an example. Where the layer of accumulation was originally thin, however, plowing and cultivating have incorporated it into other layers. Plowing and cultivation also facilitate accelerated decomposition due to increased aeration so that over time a significant reduction of organic matter is effected. Erosion is the process of transporting exposed topsoil with its organic matter offsite. Tyner and Cardinal are examples of soils that have a relatively low content of organic matter.

Leaching of carbonates, i.e. lime, from calcareous parent materials is one of the most significant losses. It precedes many other chemical changes in the solum. In most of the glacial till in the county the content of carbonates ranges from 5 to 25 percent. Most of the light colored soils that formed in glacial till have been leached to a depth of 20 to 36 inches. The upper 24 inches of the soil profile is now acid. Carbonates in the coarse textured soils, such as Colonie and Elnora soils, generally have been leached to a depth of more than 36 inches. The loss of lime creates a changed chemical environment in the soil so that other minerals are progressively solublized and subsequently leached. The most susceptible minerals are acted upon first and generally the rates of weathering decrease with time as the most stable minerals remain. Their susceptibility to weathering is slower and their removal is slower.

Transformation of mineral compounds occurs in most soils. Following the removal of carbonates, alterations to such minerals as biotite and feldspar result in changes of color within the profile. Iron in mineral compounds commonly becomes reduced and soluble in anaerobic conditions. This iron in solution is neutral in color and allows the color of more resistant minerals, mostly silica, to determine the appearance. Gray soil generally indicates the reduced form of iron or gleying. Reduced iron in solution can also reoxidize and segregate as insoluble oxides in other places of the soil profile or continue to move in solution beyond the soil profile. These segregations are observed as mottles that are often shades of yellowish brown or reddish brown. These alterations of iron are common in soils that are not well drained. Otherwise, if the water table is not seasonally high within the solum, the more stable forms of iron

oxides typically lend brownish colors with higher chroma and redder hue than those in the substratum.

Another expression of transformation is the alteration of primary silicate minerals. These minerals are chemically weathered so that secondary minerals, mainly those of the layer-lattice silicate clays are produced. Most of the layer-lattice clays remain in place in the soil profile although some clay from the topsoil is commonly transferred to the subsoil.

An important transfer of components within the soil is the movement of clay from the surface layer to the subsurface layer. This occurs with the cycles of wetting and drying of the soil profile. The fine clay becomes preferentially suspended in percolating water moving through the surface layer of the soil profile. As the water gravitates downward to the subsoil the fine clay is carried with it. Where the water is absorbed into the subsoil it leaves behind the fine clay to accumulate on structure surfaces. The transfer of fine clay accounts for clay film coatings on the faces of peds in the subsoil of Darien and other soils. To a lesser extent, organic matter can move downward in the profile similarly.

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.

Banks, P.O., and R.M. Feldman, 1970. Guide to the geology of northeastern Ohio.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. February 24, 1995. Hydric soils of the United States.

Gordon, Robert B. 1969. The natural vegetation of Ohio in pioneer days. Ohio Biological Survey, Volume 3, number 2

Hartzell, Glen W., David S. Orr, Cartographer. Reprinted 1988. Groundwater resources of Ashtabula County (map).

Hurt, G.W., P.M. Whited, and R.F. Pringle, editors. Version 4.0, 1998. Field indicators of hydric soils in the United States.

Martin, J.O., and E.P. Carr, United States Department of Agriculture, Government Printing Office. 1904. Soil survey of the Ashtabula Area, Ohio.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Ohio Agricultural Statistics Service. 1999. Ohio Agricultural Statistics and Ohio Department of Agriculture Annual Report 1999.

Reeder, Neil E., and Victor L. Riemenscheider (ODNR) and Paul W. Reese (SCS). May 1973. Soil survey of Ashtabula County, Ohio.

Soil Conservation Service, United States Department of Agriculture. 1985. Ashtabula soil and water conservation district resources inventory

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1994. Keys to soil taxonomy. 6th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1998. Keys to soil taxonomy. 8th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

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 Commerce, Bureau of the Census. Ohio Office of Strategic Research. (http://www.odod.state.oh.us/osr/demochar/dc007.pdf).

White, George W., and Stanley M. Totten. 1979. Glacial geology of Ashtabula County. Report of Investigations No. 112.

Williams, William W. 1878. History of Ashtabula County, Ohio. A reproduction by Unigraphic Inc., 1974.

Wysocki, D.A., P.J. Schoeneberger, and H.E. LaGarry. 2000. Geomorphology of Soil Landscapes. In: Sumner, M.E. (ed.) 2000. Handbook of Soil Science. CRC Press LLC, Baca Raton, FL. ISBN:0-8493-3136-6

Glossary

ABC soil. A soil having an A, a B, and a C horizon.

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

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.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.
Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
COLE (coefficient of linear extensibility). See Linear extensibility.
Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
Complex 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.”
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.

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.

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.

Diameter breast height (dbh). The diameter of a tree 4.5 feet above the soil surface on the uphill side of the tree where diameter measurements are ordinarily taken.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Effluent. The aqueous discharge from a home waste treatment system.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

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).

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.

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.

Ground water. Water filling all the unblocked pores of the material below the water table.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

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:

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.

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.

Kame. An irregular, short ridge or hill of stratified glacial drift.

Kame terrace. A terrace landscape position consisting of stratified sand and gravel that was deposited by meltwater flow between a melting glacier and an adjacent valley wall or moraine that remained after the recession of the ice.

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.
Lake plain. A surface marking the floor of an extinct lake.
Landform. Any physical recognizeable form or feature on the earth's surface, having a characteristic shape and produced by natural causes. Landforms provide emperical descriptions of similar positions of the earth's surface.
Landscape. A collection of related landforms; usually the land surface which the eye can comprehend in a single view.
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.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

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.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the 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.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4

Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Riser. The relatively short steeply sloping face of a terrace that defines the terrace above a lower terrace or base level.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

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.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

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.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level	0 to 1 percent
Level and Nearly level	0 to 3 percent
Gently sloping	1 to 6 percent
Strongly sloping	6 to 12 percent
Moderately steep	12 to 18 percent
Steep	18 to 50 percent
Very steep	50 percent and higher

Classes for complex slopes are as follows:

Level	0 to 1 percent
Level and Nearly level	0 to 3 percent
Gently undulating	1 to 6 percent
Rolling	6 to 12 percent
Hilly	12 to 18 percent
Steep	18 to 50 percent
Very steep	50 percent and higher

Sloughed till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

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.

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).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace (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.

Toe slope. The outermost inclined surface at the base of a hill; part of the footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The relatively flat surface of the terrace or floodplain that was created primarily by water deposited sediments.

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.

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 table. The upper surface of the groundwater or that level below which the soil is saturated with water; the upper surface is the locus of points in soil water at which the hydraulic pressure is equal to atmospheric pressure.

Water table, apparent. Same as water table. Apparent water table is the reference when the water table is identified within the soil profile.

Water table, perched. The surface of a local zone of saturation held above the main body of groundwater by a less permeable layer or stratum and separated from the main body of groundwater by an unsaturated zone. Perched water table is the reference when this condition is identified within the soil profile.

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 1a.—Temperature and Precipitation—Ashtabula, Ohio

(Recorded in the period 1961-90 at Ashtabula, Ohio)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	32.1	17.4	24.7	60	-9	1	1.90	1.05	2.65	5	15.6
February----	34.1	18.1	26.1	62	-5	1	1.91	1.01	2.71	5	12.6
March-------	43.6	27.2	35.4	78	5	20	2.38	1.52	3.32	6	5.8
April-------	55.4	36.9	46.1	84	20	78	3.15	1.94	4.24	7	0.9
May---------	67.0	47.0	57.0	88	30	251	3.31	2.00	4.49	7	0.0
June--------	76.6	56.5	66.6	94	39	497	4.02	2.56	5.33	7	0.0
July--------	80.8	61.3	71.1	94	46	653	3.88	2.13	5.43	5	0.0
August------	79.2	60.0	69.6	92	46	607	3.78	2.33	5.08	7	0.0
September---	73.0	53.6	63.3	90	37	400	3.84	2.55	5.02	7	0.0
October-----	61.6	43.4	52.5	83	27	149	3.45	2.09	4.68	8	0.1
November----	49.7	35.3	42.5	74	17	32	3.78	2.15	5.23	9	3.1
December----	37.4	24.7	31.0	65	1	5	3.24	2.13	4.25	8	12.3
Yearly:											
Average---	57.5	40.1	48.8	---	---	---	---	---	---	---	---
Extreme---	100	-17	---	95	-11	---	---	---	---	---	---
Total-----	---	---	---	---	---	2695	38.64	32.17	42.82	81	50.4

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees. F).

Table 1b.—Temperature and Precipitation—Dorset, Ohio

(Recorded in the period 1961-90 at Dorset, Ohio)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	30.7	13.5	22.1	58	-18	0	2.49	1.27	3.56	7	16.5
February----	33.5	14.2	23.8	60	-15	0	2.36	1.28	3.31	6	13.1
March-------	44.1	24.8	34.5	77	-5	18	3.15	1.88	4.28	9	10.4
April-------	56.2	34.2	45.2	83	13	72	3.54	2.41	4.57	8	3.1
May---------	67.8	43.8	55.8	87	25	227	3.83	2.57	4.98	8	0.1
June--------	76.7	53.0	64.8	92	33	447	4.27	2.75	5.65	8	0.0
July--------	81.1	57.1	69.1	94	40	590	4.11	2.51	5.55	7	0.0
August------	79.4	55.9	67.6	91	39	547	4.21	2.80	5.50	7	0.0
September---	73.1	49.7	61.4	90	31	348	4.07	2.70	5.33	8	0.0
October-----	61.4	39.5	50.5	81	21	118	3.57	1.93	5.02	8	0.6
November----	48.7	32.0	40.3	74	13	24	4.10	2.55	5.49	10	7.4
December----	35.8	21.1	28.4	64	-9	3	3.27	2.31	4.16	9	19.1
Yearly:											
Average---	57.4	36.6	47.0	---	---	---	---	---	---	---	---
Extreme---	100	-28	---	94	-20	---	---	---	---	---	---
Total-----	---	---	---	---	---	2395	42.98	36.76	48.27	95	70.2

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees. F).

Table 2a.—Freeze Dates in Spring and Fall—Ashtabula, Ohio

(Recorded in the period 1961-90 at Ashtabula, Ohio)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 15	May 4	May 13
2 year in 10 later than--	April 12	April 29	May 9
5 year in 10 later than--	April 5	April 19	May 1
First freezing temperature in fall:			
1 yr in 10 earlier than--	November 9	October 21	October 12
2 yr in 10 earlier than--	November 14	October 27	October 17
5 yr in 10 earlier than--	November 23	November 6	October 26

Table 2b.—Freeze Dates in Spring and Fall—Dorset, Ohio

(Recorded in the period 1961-90 at Dorset, Ohio)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 4	May 18	June 5
2 year in 10 later than--	April 28	May 13	May 30
5 year in 10 later than--	April 17	May 4	May 19
First freezing temperature in fall:			
1 yr in 10 earlier than--	October 16	October 8	September 12
2 yr in 10 earlier than--	October 22	October 14	September 19
5 yr in 10 earlier than--	November 2	October 25	October 2

Table 3a.—Growing Season—Ashtabula, Ohio

(Recorded for the period 1961-90 at Ashtabula, Ohio)

Probability	Daily Minimum Temperature During growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	218	175	160
8 years in 10	223	184	166
5 years in 10	233	202	179
2 years in 10	243	219	192
1 year in 10	248	229	199

Table 3b.—Growing Season—Dorset, Ohio

(Recorded for the period 1961-90 at Dorset, Ohio)

Probability	Daily Minimum Temperature During growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	172	153	105
8 years in 10	181	160	116
5 years in 10	198	173	135
2 years in 10	215	186	154
1 year in 10	224	193	164

Table 4.—Acreage and Proportionate Extent of the Map Units

Map symbol	Soil name	Acres	Percent
Be	Beaches	86	*
BkA	Blakeslee silt loam, 0 to 2 percent slopes	195	*
BkB	Blakeslee silt loam, 2 to 6 percent slopes	1,047	0.2
BkC	Blakeslee silt loam, 6 to 12 percent slopes	285	*
CaB	Cambridge silt loam, 2 to 6 percent slopes	4,754	1.0
CaC	Cambridge silt loam, 6 to 12 percent slopes	3,078	0.7
CaD	Cambridge silt loam, 12 to 18 percent slopes	403	*
CcA	Canadice silt loam, 0 to 2 percent slopes	5,898	1.3
CdA	Caneadea silt loam, 0 to 2 percent slopes	1,785	0.4
CdB	Caneadea silt loam, 2 to 6 percent slopes	2,168	0.5
CeA	Caneadea-Canadice silt loams, 0 to 2 percent slopes	4,371	1.0
CfC2	Cardinal silt loam, 6 to 12 percent slopes, eroded	129	*
CfD2	Cardinal silt loam, 12 to 18 percent slopes, eroded	163	*
CfF	Cardinal silt loam, 18 to 50 percent slopes	1,661	0.4
CgA	Carlisle muck, 0 to 1 percent slopes	263	*
CkA	Chenango gravelly loam, 0 to 2 percent slopes	1,256	0.3
CkB	Chenango gravelly loam, 2 to 6 percent slopes	5,937	1.3
CkC	Chenango gravelly loam, 6 to 12 percent slopes	2,441	0.5
CkD	Chenango gravelly loam, 12 to 18 percent slopes	908	0.2
CoB	Colonie loamy fine sand, 2 to 6 percent slopes	1,893	0.4
CoD	Colonie loamy fine sand, 12 to 18 percent slopes	418	*
CpB	Colonie-Urban land complex, 2 to 6 percent slopes	663	0.1
CtA	Conneaut silt loam, 0 to 2 percent slopes	14,097	3.1
CuA	Conneaut-Urban land complex, 0 to 2 percent slopes	1,921	0.4
DAM	Dam	3	*
DeC	Darien and Platea silt loams, 6 to 12 percent slopes	17,621	3.9
DeC2	Darien and Platea silt loams, 6 to 12 percent slopes, eroded	362	*
DhB	Darien-Hornell silt loams, 2 to 6 percent slopes	982	0.2
EnB	Elnora loamy fine sand, 1 to 5 percent slopes	4,414	1.0
FcA	Fitchville silt loam, 0 to 2 percent slopes	3,650	0.8
FcB	Fitchville silt loam, 2 to 6 percent slopes	1,652	0.4
GaF	Gageville silt loam, 18 to 50 percent slopes	6,614	1.5
GfA	Glenford silt loam, 0 to 2 percent slopes	397	*
GfB	Glenford silt loam, 2 to 6 percent slopes	528	0.1
GfC	Glenford silt loam, 6 to 12 percent slopes	110	*
GfD	Glenford silt loam, 12 to 18 percent slopes	63	*
HaA	Harbor fine sandy loam, 0 to 3 percent slopes	3,368	0.7
HaC	Harbor fine sandy loam, 6 to 12 percent slopes	152	*
HbB	Harbor-Urban land complex, 0 to 6 percent slopes	1,002	0.2
HmA	Holly silt loam, 0 to 2 percent slopes, frequently flooded	397	*
HoA	Hornell silt loam, 0 to 2 percent slopes	3,221	0.7
HoB	Hornell silt loam, 2 to 6 percent slopes	614	0.1
KfA	Kingsville loamy fine sand, 0 to 2 percent slopes	1,971	0.4
La	Landfills	105	*
MhA	Mill silt loam, 0 to 2 percent slopes	140,326	30.8
MtA	Mitiwanga silt loam, 0 to 2 percent slopes	905	0.2
MtB	Mitiwanga silt loam, 2 to 6 percent slopes	840	0.2
OrA	Orrville silt loam, 0 to 2 percent slopes, frequently flooded	512	0.1
OtA	Otego silt loam, 0 to 2 percent slopes, frequently flooded	5,318	1.2
OuC	Otisville gravelly sandy loam, 6 to 12 percent slopes	280	*
PaA	Painesville fine sandy loam, 0 to 2 percent slopes	6,447	1.4
PbA	Painesville-Urban land complex, 0 to 2 percent slopes	309	*
PeC2	Pierpont silt loam, 6 to 12 percent slopes, eroded	970	0.2
PeD	Pierpont silt loam, 12 to 18 percent slopes	3,876	0.9
Pg	Pits, gravel	1,027	0.2
Pk	Pits, quarry	11	*
PrA	Platea-Darien silt loams, 0 to 2 percent slopes	17,588	3.9
PrB	Platea-Darien silt loams, 2 to 6 percent slopes	96,454	21.2
PrB2	Platea-Darien silt loams, 2 to 6 percent slopes, eroded	1,935	0.4
PtB	Platea-Urban land complex, 2 to 6 percent slopes	505	0.1
PtC	Platea-Urban land complex, 6 to 12 percent slopes	107	*
RhA	Red Hook silt loam, 0 to 2 percent slopes	2,642	0.6

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Map Units—Continued

Map symbol	Soil name	Acres	Percent
RhB	Red Hook silt loam, 2 to 6 percent slopes	2,939	0.6
Rw	Riverwash	138	*
SbA	Sebring silt loam, 0 to 2 percent slopes	4,626	1.0
StA	Stanhope silt loam, 0 to 2 percent slopes, frequently flooded	9,919	2.2
ToC	Towerville silt loam, 6 to 12 percent slopes	91	*
ToD	Towerville silt loam, 12 to 18 percent slopes	80	*
TyB	Tyner-Otisville complex, 2 to 6 percent slopes	2,992	0.7
Ud	Udorthents	6,620	1.5
Un	Urban land	890	0.2
UrB	Urban land-Elnora complex, 1 to 5 percent slopes	658	0.1
UtB	Urban land-Tyner-Otisville complex, 2 to 6 percent slopes	829	0.2
VeA	Venango silt loam, 0 to 2 percent slopes	969	0.2
VeB	Venango silt loam, 2 to 6 percent slopes	13,167	2.9
W	Water	7,225	1.6
WcA	Wick silt loam, 0 to 2 percent slopes, frequently flooded	20,230	4.4
WeA	Willette muck, 0 to 1 percent slopes	633	0.1
	Total	455,104	100.0

* Less than 0.1 percent.

Table 5.—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	Map unit name
BkA	Blakeslee silt loam, 0 to 2 percent slopes
BkB	Blakeslee silt loam, 2 to 6 percent slopes
CaB	Cambridge silt loam, 2 to 6 percent slopes
CkA	Chenango gravelly loam, 0 to 2 percent slopes
CkB	Chenango gravelly loam, 2 to 6 percent slopes
CtA	Conneaut silt loam, 0 to 2 percent slopes (Prime farmland if drained)
DhB	Darien-Hornell silt loams, 2 to 6 percent slopes (Prime farmland if drained)
FcA	Fitchville silt loam, 0 to 2 percent slopes (Prime farmland if drained)
FcB	Fitchville silt loam, 2 to 6 percent slopes (Prime farmland if drained)
GfA	Glenford silt loam, 0 to 2 percent slopes
GfB	Glenford silt loam, 2 to 6 percent slopes
HaA	Harbor fine sandy loam, 0 to 3 percent slopes
HmA	Holly silt loam, 0 to 2 percent slopes, frequently flooded (Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season)
HoA	Hornell silt loam, 0 to 2 percent slopes (Prime farmland if drained)
HoB	Hornell silt loam, 2 to 6 percent slopes (Prime farmland if drained)
MhA	Mill silt loam, 0 to 2 percent slopes (Prime farmland if drained)
MtA	Mitiwanga silt loam, 0 to 2 percent slopes (Prime farmland if drained)
MtB	Mitiwanga silt loam, 2 to 6 percent slopes (Prime farmland if drained)
OrA	Orrville silt loam, 0 to 2 percent slopes, frequently flooded (Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season)
OtA	Otego silt loam, 0 to 2 percent slopes, frequently flooded (Prime farmland if protected from flooding or not frequently flooded during the growing season)
PaA	Painesville fine sandy loam, 0 to 2 percent slopes (Prime farmland if drained)
RhA	Red hook silt loam, 0 to 2 percent slopes (Prime farmland if drained)
RhB	Red hook silt loam, 2 to 6 percent slopes (Prime farmland if drained)
SbA	Sebring silt loam, 0 to 2 percent slopes (Prime farmland if drained)
StA	Stanhope silt loam, 0 to 2 percent slopes, frequently flooded (Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season)
VeA	Venango silt loam, 0 to 2 percent slopes (Prime farmland if drained)
VeB	Venango silt loam, 2 to 6 percent slopes (Prime farmland if drained)
WcA	Wick silt loam, 0 to 2 percent slopes, frequently flooded (Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season)

Table 6.—Hydric Soils

Map symbol	Soil name
CcA	Canadice silt loam, 0 to 2 percent slopes
CeA	Caneadea-Canadice silt loams, 0 to 2 percent slopes
CgA	Carlisle muck, 0 to 1 percent slopes
HmA	Holly silt loam, 0 to 2 percent slopes, frequently flooded
KfA	Kingsville loamy fine sand, 0 to 2 percent slopes
MhA	Mill silt loam, 0 to 2 percent slopes
SbA	Sebring silt loam, 0 to 2 percent slopes
StA	Stanhope silt loam, 0 to 2 percent slopes, frequently flooded
WcA	Wick silt loam, 0 to 2 percent slopes, frequently flooded
WeA	Willette muck, 0 to 1 percent slopes

Table 7.—Non-hydric Map Units with Hydric Components

Map symbol and map unit name	Hydric Component	Landform
CdA: Caneadea silt loam, 0 to 2 percent slopes	Canadice	lake plain
	Sebring	lake plain
CdB: Caneadea silt loam, 2 to 6 percent slopes	Canadice	lake plain
	Sebring	lake plain
DhB: Darien-Hornell silt loams, 2 to 6 percent slopes	Mill	end moraine ground moraine
FcA: Fitchville silt loam, 0 to 2 percent slopes	Sebring	lake plain
	Canadice	lake plain
FcB: Fitchville silt loam, 2 to 6 percent slopes	Sebring	lake plain
MtA: Mitiwanga silt loam, 0 to 2 percent slopes	Poorly drained soils with bedrock starting at 40 - 60 inches	ground moraine
MtB: Mitiwanga silt loam, 2 to 6 percent slopes	Poorly drained soils with bedrock starting at 40 - 60 inches	ground moraine
OrA: Orrville silt loam, 0 to 2 percent slopes, frequently flooded	Holly	flood plain
PaA: Painesville fine sandy loam, 0 to 2 percent slopes	Kingsville	lake plain
	Poorly drained soils	lake plain
PbA: Painesville-Urban land complex, 0 to 2 percent slopes	Kingsville	lake plain
	Poorly drained soils	lake plain

Table 7.—Non-hydric Map Units with Hydric Components—Continued

Map symbol and map unit name	Hydric Component	Landform
PrA: Platea-Darien silt loams, 0 to 2 percent slopes	Mill	ground moraine
PrB: Platea-Darien silt loams, 2 to 6 percent slopes	Mill	ground moraine
RhA: Red Hook silt loam, 0 to 2 percent slopes	Poorly drained soils with more clay in the subsoil	outwash plain outwash terrace
RhB: Red Hook silt loam, 2 to 6 percent slopes	Poorly drained soils with more clay in the subsoil	outwash plain outwash terrace
VeA: Venango silt loam, 0 to 2 percent slopes	Mill	ground moraine

Table 8.—Cropland Limitations and Hazards

(See text for a description of the limitations and hazards listed in this table. Only soils suitable for cultivated crops are listed in this table.)

Soil name and map symbol	Cropland limitations and hazards
BkA:	
Blakeslee	Seasonal high water table, surface compaction, high potential for ground-water pollution
BkB:	
Blakeslee	Seasonal high water table, surface compaction, high potential for ground-water pollution, erosion hazard, limited available water capacity
BkC:	
Blakeslee	Seasonal high water table, surface compaction, high potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity
CaB:	
Cambridge	Seasonal high water table, surface compaction, limited available water capacity, restricted permeability, root restrictive layer
CaC:	
Cambridge	Seasonal high water table, surface compaction, easily eroded, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
CaD:	
Cambridge	Seasonal high water table, surface compaction, easily eroded, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
CcA:	
Canadice	Ponding, surface compaction, moderate potential for ground-water pollution, frost action, restricted permeability, high clay content
CdA:	
Caneadea	Seasonal high water table, surface compaction, frost action, surface crusting, restricted permeability, high clay content
CdB:	
Caneadea	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, restricted permeability, high clay content
CeA:	
Caneadea	Seasonal high water table, surface compaction, frost action, surface crusting, restricted permeability, high clay content
Canadice	Ponding, surface compaction, moderate potential for ground-water pollution, frost action, restricted permeability, high clay content
CfC2:	
Cardinal	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, high clay content
CkA:	
Chenango	High potential for ground-water pollution, limited available water capacity
CkB:	
Chenango	High potential for ground-water pollution, erosion hazard, limited available water capacity

Table 8.—Cropland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards
CkC:	
Chenango	High potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity
CkD:	
Chenango	High potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity
CoB:	
Colonie	Erosion hazard, wind erosion, limited available water capacity, sandy layers
CoD:	
Colonie	Easily eroded, erosion hazard, wind erosion, limited available water capacity, sandy layers
CtA:	
Conneaut	Seasonal high water table, surface compaction, frost action, surface crusting
DeC:	
Darien	Seasonal high water table, surface compaction, frost action, easily eroded, erosion hazard
Platea	Seasonal high water table, surface compaction, frost action, easily eroded, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
DeC2:	
Darien	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard
Platea	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
DhB:	
Darien	Seasonal high water table, surface compaction, frost action, erosion hazard
Hornell	Seasonal high water table, surface compaction, depth to bedrock, high potential for ground-water pollution, frost action, easily eroded, erosion hazard, limited available water capacity, restricted permeability, high clay content
EnB:	
Elnora	Seasonal high water table, high potential for ground-water pollution, erosion hazard, wind erosion, limited available water capacity, sandy layers
FcA:	
Fitchville	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action
FcB:	
Fitchville	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, erosion hazard
GfA:	
Glenford	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting

Table 8.—Cropland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards
GfB: Glenford	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting, erosion hazard
GfC: Glenford	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting, easily eroded, erosion hazard
GfD: Glenford	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting, easily eroded, erosion hazard
HaA: Harbor	Seasonal high water table, wind erosion
HaC: Harbor	Seasonal high water table, easily eroded, erosion hazard, wind erosion
HmA: Holly	Frequent flooding, seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action
HoA: Hornell	Seasonal high water table, surface compaction, depth to bedrock, high potential for ground-water pollution, frost action, limited available water capacity, restricted permeability, high clay content
HoB: Hornell	Seasonal high water table, surface compaction, depth to bedrock, high potential for ground-water pollution, frost action, easily eroded, erosion hazard, limited available water capacity, restricted permeability, high clay content
MhA: Mill	Ponding, surface compaction, frost action
MtA: Mitiwanga	Seasonal high water table, surface compaction, depth to bedrock, high potential for ground-water pollution, frost action, surface crusting, limited available water capacity
MtB: Mitiwanga	Seasonal high water table, surface compaction, depth to bedrock, high potential for ground-water pollution, frost action, surface crusting, erosion hazard, limited available water capacity
OrA: Orrville	Frequent flooding, seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
OtA: Otego	Frequent flooding, seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action, surface crusting
OuC: Otisville	High potential for ground-water pollution, erosion hazard, wind erosion, limited available water capacity, sandy layers

Table 8.—Cropland Limitations and Hazards—-Continued

Soil name and map symbol	Cropland limitations and hazards
PaA:	
Painesville	Seasonal high water table, frost action, wind erosion
PeC2:	
Pierpont	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
PeD:	
Pierpont	Seasonal high water table, surface compaction, frost action, easily eroded, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
PrA:	
Platea	Seasonal high water table, surface compaction, frost action, limited available water capacity, restricted permeability, root restrictive layer
Darien	Seasonal high water table, surface compaction, frost action
PrB:	
Platea	Seasonal high water table, surface compaction, frost action, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
Darien	Seasonal high water table, surface compaction, frost action, erosion hazard
PrB2:	
Platea	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
Darien	Part of the surface layer removed by erosion, seasonal high water table, surface compaction, frost action, fair tilth, surface crusting, easily eroded, erosion hazard
RhA:	
Red Hook	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action
RhB:	
Red Hook	Seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action
SbA:	
Sebring	Ponding, surface compaction, moderate potential for ground-water pollution, frost action
StA:	
Stanhope	Frequent flooding, seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action
ToC:	
Towerville	Seasonal high water table, surface compaction, depth to bedrock, high potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity, restricted permeability
ToD:	
Towerville	Seasonal high water table, surface compaction, depth to bedrock, high potential for ground-water pollution, easily eroded, erosion hazard, limited available water capacity, restricted permeability

Table 8.—Cropland Limitations and Hazards—-Continued

Soil name and map symbol	Cropland limitations and hazards
TyB:	
Tyner	High potential for ground-water pollution, poor tilth, erosion hazard, wind erosion, limited available water capacity, sandy layers
Otisville	Very gravelly surface, high potential for ground-water pollution, erosion hazard, wind erosion, limited available water capacity, sandy layers
VeA:	
Venango	Seasonal high water table, surface compaction, frost action, surface crusting, limited available water capacity, restricted permeability, root restrictive layer
VeB:	
Venango	Seasonal high water table, surface compaction, frost action, surface crusting, erosion hazard, limited available water capacity, restricted permeability, root restrictive layer
WcA:	
Wick	Frequent flooding, seasonal high water table, surface compaction, moderate potential for ground-water pollution, frost action

Table 9.—Crop Yield Index

(Estimated yields for soils with a yield index of 100 are: corn - 115 bushels; soybeans - 45 bushels; wheat - 50 bushels; oats - 80 bushels; and Grass-legume hay - 4.5 tons. Refer to Crop Yield Index section in the text for more information on how this table was developed, and instructions on converting yield index numbers to estimated yields. Absence of a yield index indicates that the soil is not suited to the crop or the crop is generally not grown on the soil.)

Map symbol and soil name	Corn	Soybeans	Wheat	Oats	Grass-legume hay
BkA: Blakeslee	96	89	90	95	89
BkB: Blakeslee	96	84	80	94	89
BkC: Blakeslee	83	76	72	88	89
CaB: Cambridge	87	93	88	94	89
CaC: Cambridge	78	69	70	88	89
CaD: Cambridge	74	62	60	81	67
CcA: Canadice	65	49	60	75	67
CdA: Caneadea	80	71	72	88	67
CdB: Caneadea	82	71	76	90	67
CeA: Caneadea Canadice	78	71	72	88	67
CfC2: Cardinal	74	67	66	81	67
CfD2: Cardinal	--	--	--	--	--
CfF: Cardinal	--	--	--	--	--
CgA: Carlisle	--	--	--	--	--
CkA: Chenango	87	78	80	88	89
CkB: Chenango	87	78	80	88	89
CkC: Chenango	78	71	74	81	89
CkD: Chenango	70	64	66	75	67
CoB: Colonie	65	56	64	75	67

Table 9.—Crop Yield Index—Continued

Map symbol and soil name	Corn	Soybeans	Wheat	Oats	Grass-legume hay
CoD: Colonie	57	44	54	62	62
CtA: Conneaut	83	71	72	88	89
DeC: Darien, Platea	65	67	70	75	76
DeC2: Darien, Platea	61	62	60	59	71
DhB: Darien, Hornell	74	71	70	90	89
EnB: Elnora	70	67	70	79	67
FcA: Fitchville	96	78	76	90	89
FcB: Fitchville	91	76	74	88	89
GaF: Gageville	--	--	--	--	--
GfA: Glenford	100	100	100	100	100
GfB: Glenford	97	96	96	96	98
GfC: Glenford	83	84	80	88	89
GfD: Glenford	74	56	70	81	80
HaA: Harbor	78	80	72	94	78
HaC: Harbor	61	71	64	88	73
HmA: Holly	65	56	56	62	67
HoA: Hornell	74	67	70	81	71
HoB: Hornell	74	64	68	81	71
KfA: Kingsville	--	--	--	--	--
MhA: Mill	65	67	60	88	67
MtA: Mitiwanga	78	67	80	94	89

Table 9.—Crop Yield Index—Continued

Map symbol and soil name	Corn	Soybeans	Wheat	Oats	Grass-legume hay
MtB: Mitiwanga	74	58	70	89	80
OrA: Orrville	87	71	70	88	78
OtA: Otego	96	89	84	94	89
OuC: Otisville	52	44	44	56	56
PaA: Painesville	87	89	86	88	87
PeC2: Pierpont	70	67	70	81	89
PeD: Pierpont	65	60	62	79	71
PrA: Platea Darien	87	78	78	84	80
PrB: Platea Darien	83	73	70	81	78
PrB2: Platea Darien	74	67	64	69	67
RhA: Red Hook	87	71	72	88	78
RhB: Red Hook	85	67	68	81	78
SbA: Sebring	78	58	60	75	73
StA: Stanhope	78	58	60	75	73
ToC: Towerville	70	58	60	75	71
ToD: Towerville	65	51	54	69	56
TyB: Tyner Otisville	61	53	56	69	56
VeA: Venango	91	78	76	88	78
VeB: Venango	90	73	74	85	78
WcA: Wick	65	56	56	62	67
WeA: Willette	--	--	--	--	--

Table 10.—Capability Classes and Subclasses

Capability class	Capability subclass	Acreage
Unclassified	---	22,099
1	---	592
2	e	8,821
	w	21,246
	s	12,454
3	e	123,499
	w	79,485
	s	2,992
4	e	5,877
	w	166,454
	s	280
5	w	2,867
6	e	163
7	e	8,275

Table 11.—Woodland Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Erosion hazard		Seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Slight		Low		Severe	
	Water erosion	0.01			Low strength	1.00
BkB:						
Blakeslee	Slight		Low		Severe	
	Water erosion	0.05			Low strength	1.00
BkC:						
Blakeslee	Slight		Low		Severe	
	Water erosion	0.10			Low strength	1.00
CaB:						
Cambridge	Slight		Low		Severe	
	Water erosion	0.05			Low strength	1.00
CaC:						
Cambridge	Moderate		High		Severe	
	Water erosion	0.24	Wetness	1.00	Low strength	1.00
CaD:						
Cambridge	Moderate		Low		Severe	
	Water erosion	0.37			Low strength	1.00
CcA:						
Canadice	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
CdA:						
Caneadea	Slight		High		Severe	
	Water erosion	0.02	Wetness	1.00	Low strength	1.00
CdB:						
Caneadea	Slight		High		Severe	
	Water erosion	0.07	Wetness	1.00	Low strength	1.00
CeA:						
Caneadea	Slight		High		Severe	
	Water erosion	0.02	Wetness	1.00	Low strength	1.00
Canadice	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
CfC2:						
Cardinal	Slight		High		Severe	
	Water erosion	0.20	Wetness	1.00	Low strength	1.00
CfD2:						
Cardinal	Moderate		High		Severe	
	Water erosion	0.34	Wetness	1.00	Low strength	1.00

Table 11.—Woodland Management—Continued

Map symbol and soil name	Erosion hazard		Seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CfF:						
Cardinal	Severe		Low		Severe	
	Water erosion	0.85			Low strength	1.00
CgA:						
Carlisle	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
					Depth to saturated zone	0.50
CkA:						
Chenango	Slight		Low		Moderate	
	Water erosion	0.01			Low strength	0.50
CkB:						
Chenango	Slight		Low		Moderate	
	Water erosion	0.03			Low strength	0.50
CkC:						
Chenango	Slight		Low		Moderate	
	Water erosion	0.15			Low strength	0.50
CkD:						
Chenango	Moderate		Low		Moderate	
	Water erosion	0.30			Low strength	0.50
CoB:						
Colonie	Slight		Low		Moderate	
	Water erosion	0.05			Low strength	0.50
CoD:						
Colonie	Moderate		Low		Moderate	
	Water erosion	0.23			Low strength	0.50
CpB:						
Colonie	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
CuA:						
Conneaut	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam			Not rated		Not rated	
DeC:						
Darien	Slight		High		Severe	
	Water erosion	0.22	Wetness	1.00	Low strength	1.00
Platea	Slight		High		Severe	
	Water erosion	0.20	Wetness	1.00	Low strength	1.00
DeC2:						
Darien	Slight		High		Severe	

Table 11.—Woodland Management—Continued

Map symbol and soil name	Erosion hazard		Seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
	Water erosion	0.20	Wetness	1.00	Low strength	1.00
Platea	Slight		High		Severe	
	Water erosion	0.20	Wetness	1.00	Low strength	1.00
DhB:						
Darien	Slight		High		Severe	
	Water erosion	0.07	Wetness	1.00	Low strength	1.00
Hornell	Slight		High		Severe	
	Water erosion	0.12	Wetness	1.00	Low strength	1.00
EnB:						
Elnora	Slight		Low		Moderate	
	Water erosion	0.03			Low strength	0.50
FcA:						
Fitchville	Slight		High		Severe	
	Water erosion	0.04	Wetness	1.00	Low strength	1.00
FcB:						
Fitchville	Slight		High		Severe	
	Water erosion	0.10	Wetness	1.00	Low strength	1.00
GaF:						
Gageville	Severe		Low		Severe	
	Water erosion	0.93			Low strength	1.00
GfA:						
Glenford	Slight		High		Severe	
	Water erosion	0.04	Wetness	1.00	Low strength	1.00
GfB:						
Glenford	Slight		High		Severe	
	Water erosion	0.10	Wetness	1.00	Low strength	1.00
GfC:						
Glenford	Slight		High		Severe	
	Water erosion	0.22	Wetness	1.00	Low strength	1.00
GfD:						
Glenford	Moderate		Low		Severe	
	Water erosion	0.41			Low strength	1.00
HaA:						
Harbor	Slight		Low		Moderate	
	Water erosion	0.01			Low strength	0.50
HaC:						
Harbor	Slight		Low		Moderate	
	Water erosion	0.15			Low strength	0.50
HbB:						
Harbor	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00

Table 11.—Woodland Management—Continued

Map symbol and soil name	Erosion hazard		Seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HoA:						
Hornell	Slight		High		Severe	
	Water erosion	0.02	Wetness	1.00	Low strength	1.00
HoB:						
Hornell	Slight		High		Severe	
	Water erosion	0.10	Wetness	1.00	Low strength	1.00
KfA:						
Kingsville	Slight		High		Moderate	
	Water erosion	0.01	Wetness	1.00	Depth to saturated zone	0.50
					Low strength	0.50
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
MtA:						
Mitiwanga	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
MtB:						
Mitiwanga	Slight		High		Severe	
	Water erosion	0.03	Wetness	1.00	Low strength	1.00
OrA:						
Orrville	Slight		High		Severe	
	Water erosion	0.02	Wetness	1.00	Low strength	1.00
OtA:						
Otego	Slight		Low		Severe	
	Water erosion	0.02			Low strength	1.00
OuC:						
Otisville	Slight		Low		Moderate	
	Water erosion	0.15			Low strength	0.50
PaA:						
Painesville	Slight		High		Moderate	
	Water erosion	0.01	Wetness	1.00	Low strength	0.50
PbA:						
Painesville	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Slight		High		Severe	
	Water erosion	0.20	Wetness	1.00	Low strength	1.00
PeD:						
Pierpont	Moderate		High		Severe	
	Water erosion	0.37	Wetness	1.00	Low strength	1.00
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	

Table 11.—Woodland Management—Continued

Map symbol and soil name	Erosion hazard		Seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
Darien	Slight		High		Severe	
	Water erosion	0.02	Wetness	1.00	Low strength	1.00
PrB:						
Platea	Slight		High		Severe	
	Water erosion	0.07	Wetness	1.00	Low strength	1.00
Darien	Slight		High		Severe	
	Water erosion	0.12	Wetness	1.00	Low strength	1.00
PrB2:						
Platea	Slight		High		Severe	
	Water erosion	0.07	Wetness	1.00	Low strength	1.00
Darien	Slight		High		Severe	
	Water erosion	0.10	Wetness	1.00	Low strength	1.00
PtB:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
RhB:						
Red Hook	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
StA:						
Stanhope	Slight		High		Severe	
	Water erosion	0.01	Wetness	1.00	Low strength	1.00
ToC:						
Towerville	Moderate		High		Severe	
	Water erosion	0.24	Wetness	1.00	Low strength	1.00
ToD:						
Towerville	Moderate		High		Severe	
	Water erosion	0.37	Wetness	1.00	Low strength	1.00

Table 11.—Woodland Management—Continued

Map symbol and soil name	Erosion hazard		Seedling mortality		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TyB:						
Tyner	Slight Water erosion	 0.03	Low		Moderate Low strength	 0.50
Otisville	Slight Water erosion	 0.07	Low		Slight Low strength	 0.10
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Not rated		Not rated		Not rated	
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Not rated		Not rated		Not rated	
Otisville	Not rated		Not rated		Not rated	
VeA:						
Venango	Slight Water erosion	 0.05	High Wetness	 1.00	Severe Low strength	 1.00
VeB:						
Venango	Slight Water erosion	 0.07	High Wetness	 1.00	Severe Low strength	 1.00
W:						
Water			Not rated		Not rated	
WcA:						
Wick	Slight Water erosion	 0.01	High Wetness	 1.00	Severe Low strength Depth to saturated zone	 1.00 0.50
WeA:						
Willette	Slight Water erosion	 0.01	High Wetness	 1.00	Severe Low strength Depth to saturated zone	 1.00 0.50

Table 12.—Woodland Productivity

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
Be:				
Beaches	---	---	---	---
BkA:				
Blakeslee	black cherry	80	57	European larch,
	eastern white pine	75	143	Norway spruce,
	northern red oak	80	57	black cherry,
	red pine	75	114	eastern white
	sugar maple	65	43	pine, red pine,
	tuliptree	90	86	tuliptree
	white ash	80	57	
BkB:				
Blakeslee	black cherry	80	57	European larch,
	eastern white pine	75	143	Norway spruce,
	northern red oak	80	57	black cherry,
	red pine	75	114	eastern white
	sugar maple	65	43	pine, red pine,
	tuliptree	90	86	tuliptree
	white ash	80	57	
BkC:				
Blakeslee	black cherry	80	57	European larch,
	eastern white pine	75	143	Norway spruce,
	northern red oak	80	57	black cherry,
	red pine	75	114	eastern white
	sugar maple	65	43	pine, red pine,
	tuliptree	90	86	tuliptree
	white ash	80	57	
CaB:				
Cambridge	American beech	---	0	Virginia pine,
	American sycamore	---	0	black oak, eastern
	northern red oak	89	72	white pine, red
	slippery elm	---	0	pine, tuliptree,
	sugar maple	84	57	white ash
	tuliptree	90	86	
	white ash	82	86	
	white oak	---	0	
CaC:				
Cambridge	American beech	---	0	Virginia pine,
	American sycamore	---	0	black oak, eastern
	northern red oak	89	72	white pine, red
	slippery elm	---	0	pine, tuliptree,
	sugar maple	84	57	white ash
	tuliptree	90	86	
	white ash	82	86	
	white oak	---	0	
CaD:				
Cambridge	American beech	---	0	Virginia pine,
	American sycamore	---	0	black oak, eastern
	northern red oak	89	72	white pine, red
	slippery elm	---	0	pine, tuliptree,
	sugar maple	84	57	white ash
	tuliptree	90	86	
	white ash	82	86	
	white oak	---	0	
CcA:				
Canadice	eastern white pine	55	86	eastern white pine,
	red maple	50	29	white spruce

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
CdA:				
Caneadea	black cherry	---	0	American sycamore,
	northern red oak	70	57	Austrian pine,
	red maple	---	0	black oak, eastern
	slippery elm	---	0	cottonwood, green
	sugar maple	65	43	ash, pin oak, red
	white ash	---	0	maple, tuliptree
	white oak	---	0	
CdB:				
Caneadea	black cherry	---	0	American sycamore,
	northern red oak	70	57	Austrian pine,
	red maple	---	0	black oak, eastern
	slippery elm	---	0	cottonwood, green
	sugar maple	65	43	ash, pin oak, red
	white ash	---	0	maple, tuliptree
	white oak	---	0	
CeA:				
Caneadea	black cherry	---	0	American sycamore,
	northern red oak	70	57	Austrian pine,
	red maple	---	0	black oak, eastern
	slippery elm	---	0	cottonwood, green
	sugar maple	65	43	ash, pin oak, red
	white ash	---	0	maple, tuliptree
	white oak	---	0	
Canadice	eastern white pine	55	86	eastern white pine,
	red maple	50	29	white spruce
CfC2:				
Cardinal	black cherry	---	0	eastern white pine,
	northern red oak	80	57	northern red oak,
	sugar maple	---	0	red pine,
	tuliptree	90	86	tuliptree, white
	white ash	---	0	ash, white oak
	white oak	76	57	
CfD2:				
Cardinal	black cherry	---	0	eastern white pine,
	northern red oak	80	57	northern red oak,
	sugar maple	---	0	red pine,
	tuliptree	90	86	tuliptree, white
	white ash	---	0	ash, white oak
	white oak	76	57	
CfF:				
Cardinal	black cherry	---	0	eastern white pine,
	northern red oak	80	57	northern red oak,
	sugar maple	---	0	red pine,
	tuliptree	90	86	tuliptree, white
	white ash	---	0	ash, white oak
	white oak	76	57	
CgA:				
Carlisle	black cherry	---	0	black willow, green
	eastern cottonwood	80	86	ash, red maple
	green ash	---	0	
	red maple	---	0	
	swamp white oak	---	0	
	white ash	---	0	

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
CkA:				
Chenango	northern red oak	80	57	European larch, eastern white pine, red pine
	sugar maple	70	43	
CkB:				
Chenango	northern red oak	80	57	European larch, eastern white pine, red pine
	sugar maple	70	43	
CkC:				
Chenango	northern red oak	80	57	European larch, eastern white pine, red pine
	sugar maple	70	43	
CkD:				
Chenango	northern red oak	80	57	European larch, eastern white pine, red pine
	sugar maple	70	43	
CoB:				
Colonie	black oak	60	43	European larch, eastern white pine, red pine
	northern red oak	60	43	
	red pine	65	114	
	sugar maple	55	29	
	white oak	60	43	
CoD:				
Colonie	black oak	60	43	European larch, eastern white pine, red pine
	northern red oak	60	43	
	red pine	65	114	
	sugar maple	55	29	
	white oak	60	43	
CpB:				
Colonie	black oak	60	43	European larch, eastern white pine, red pine
	northern red oak	60	43	
	red pine	65	114	
	sugar maple	55	29	
	white oak	60	43	
Urban Land	---	---	---	---
CtA:				
Conneaut	black cherry	---	0	American sycamore, eastern cottonwood, green ash, pin oak, red maple, silver maple, swamp white oak, sweetgum
	eastern cottonwood	---	0	
	green ash	---	0	
	pin oak	86	72	
	red maple	---	0	
	swamp white oak	---	0	
CuA:				
Conneaut	black cherry	---	0	American sycamore, eastern cottonwood, green ash, pin oak, red maple, silver maple, swamp white oak, sweetgum
	eastern cottonwood	---	0	
	green ash	---	0	
	pin oak	86	72	
	red maple	---	0	
	swamp white oak	---	0	
Urban Land	---	---	---	---

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
DAM:				
Dam	---	---	---	---
DeC:				
Darien	black cherry	---	0	American sycamore, European larch, Norway spruce, baldcypress, eastern cottonwood, eastern white pine, green ash, pin oak, red maple, swamp white oak, sweetgum, white spruce
	eastern cottonwood	---	0	
	green ash	---	0	
	northern red oak	70	57	
	pin oak	---	0	
	red maple	---	0	
	sugar maple	60	43	
	swamp white oak	---	0	
Platea	American beech	---	0	Virginia pine, green ash, red pine, tuliptree
	American sycamore	---	0	
	northern red oak	80	57	
	slippery elm	---	0	
	sugar maple	80	57	
	white ash	---	0	
	white oak	---	0	
DeC2:				
Darien	black cherry	---	0	American sycamore, European larch, Norway spruce, baldcypress, eastern cottonwood, eastern white pine, green ash, pin oak, red maple, swamp white oak, sweetgum, white spruce
	eastern cottonwood	---	0	
	green ash	---	0	
	northern red oak	70	57	
	pin oak	---	0	
	red maple	---	0	
	sugar maple	60	43	
	swamp white oak	---	0	
Platea	American beech	---	0	Virginia pine, green ash, red pine, tuliptree
	American sycamore	---	0	
	northern red oak	80	57	
	slippery elm	---	0	
	sugar maple	80	57	
	white ash	---	0	
	white oak	---	0	
DhB:				
Darien	black cherry	---	0	American sycamore, European larch, Norway spruce, baldcypress, eastern cottonwood, eastern white pine, green ash, pin oak, red maple, swamp white oak, sweetgum, white spruce
	eastern cottonwood	---	0	
	green ash	---	0	
	northern red oak	70	57	
	pin oak	---	0	
	red maple	---	0	
	sugar maple	60	43	
	swamp white oak	---	0	
Hornell	northern red oak	70	57	European larch, Norway spruce, eastern white pine, white spruce
	sugar maple	60	43	
	white ash	70	43	

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
EnB:				
Elnora	eastern white pine	65	114	Norway spruce, eastern white pine
	northern red oak	60	43	
	sugar maple	55	29	
FcA:				
Fitchville	northern red oak	80	57	American sycamore, Norway spruce, Scotch pine, black cherry, black locust, blue spruce, eastern cottonwood, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	pin oak	90	72	
	sugar maple	---	0	
	tuliptree	---	0	
FcB:				
Fitchville	northern red oak	80	57	American sycamore, Norway spruce, Scotch pine, black cherry, black locust, blue spruce, eastern cottonwood, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	pin oak	90	72	
	sugar maple	---	0	
	tuliptree	---	0	
GaF:				
Gageville	black cherry	---	0	black walnut, eastern white pine, northern red oak, red pine, tuliptree, white ash, white oak
	black walnut	---	0	
	northern red oak	87	72	
	sugar maple	---	0	
	tuliptree	---	0	
	white ash	---	0	
	white oak	---	0	
GfA:				
Glenford	black cherry	---	0	American sycamore, Norway spruce, Scotch pine, black cherry, black locust, blue spruce, eastern cottonwood, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	northern red oak	86	72	
	sugar maple	---	0	
	tuliptree	96	100	
	white ash	---	0	
	white oak	---	0	

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
GfB:				
Glenford	black cherry	---	0	American sycamore, Norway spruce, Scotch pine, black cherry, black locust, blue spruce, eastern cottonwood, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	northern red oak	86	72	
	sugar maple	---	0	
	tuliptree	96	100	
	white ash	---	0	
	white oak	---	0	
GfC:				
Glenford	black cherry	---	0	American sycamore, Norway spruce, Scotch pine, black cherry, black locust, blue spruce, eastern cottonwood, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	northern red oak	86	72	
	sugar maple	---	0	
	tuliptree	96	100	
	white ash	---	0	
	white oak	---	0	
GfD:				
Glenford	black cherry	---	0	American sycamore, Norway spruce, Scotch pine, black cherry, black locust, blue spruce, eastern cottonwood, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	northern red oak	86	72	
	sugar maple	---	0	
	tuliptree	96	100	
	white ash	---	0	
	white oak	---	0	
HaA:				
Harbor	black oak	80	57	black oak, black walnut, jack pine, northern red oak, red pine, tuliptree, white ash
	bur oak	---	0	
	green ash	---	0	
	northern red oak	---	0	
	quaking aspen	---	0	
	red maple	---	0	
	slippery elm	---	0	
HaC:				
Harbor	black oak	80	57	black oak, black walnut, jack pine, northern red oak, red pine, tuliptree, white ash
	bur oak	---	0	
	green ash	---	0	
	northern red oak	---	0	
	quaking aspen	---	0	
	red maple	---	0	
	slippery elm	---	0	

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
HbB:				
Harbor	black oak	80	57	black oak, black walnut, jack pine, northern red oak, red pine, tuliptree, white ash
	bur oak	---	0	
	green ash	---	0	
	northern red oak	---	0	
	quaking aspen	---	0	
	red maple	---	0	
	slippery elm	---	0	
Urban Land	---	---	---	---
HmA:				
Holly	black cherry	---	0	American sycamore, baldcypress, eastern cottonwood, green ash, pin oak, red maple, silver maple, swamp white oak, sweetgum
	eastern cottonwood	---	0	
	green ash	---	0	
	pin oak	90	72	
	red maple	---	0	
	swamp white oak	---	0	
HoA:				
Hornell	northern red oak	70	57	European larch, Norway spruce, eastern white pine, white spruce
	sugar maple	60	43	
	white ash	70	43	
HoB:				
Hornell	northern red oak	70	57	European larch, Norway spruce, eastern white pine, white spruce
	sugar maple	60	43	
	white ash	70	43	
KfA:				
Kingsville	black cherry	---	0	American sycamore, baldcypress, eastern cottonwood, pin oak, red maple, swamp white oak, sweetgum, white spruce
	eastern cottonwood	---	0	
	green ash	---	0	
	pin oak	80	57	
	red maple	75	43	
	swamp white oak	---	0	
La:				
Landfills	---	---	---	---
MhA:				
Mill	black cherry	---	0	American sycamore, eastern cottonwood, pin oak, red maple, sugar maple, swamp white oak, tuliptree, white ash
	eastern cottonwood	---	0	
	pin oak	85	72	
	red maple	---	0	
	sugar maple	94	57	
	swamp white oak	---	0	
	tuliptree	88	86	
	white ash	80	100	
MtA:				
Mitiwanga	black cherry	---	0	black walnut, eastern white pine, red pine, tuliptree, white ash, white oak
	black walnut	---	0	
	northern red oak	70	57	
	sugar maple	---	0	
	tuliptree	---	0	
	white ash	---	0	
	white oak	---	0	

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
MtB:				
Mitiwanga	black cherry	---	0	black walnut,
	black walnut	---	0	eastern white
	northern red oak	70	57	pine, red pine,
	sugar maple	---	0	tuliptree, white
	tuliptree	---	0	ash, white oak
	white ash	---	0	
	white oak	---	0	
OrA:				
Orrville	black cherry	---	0	American sycamore,
	northern red oak	80	57	Norway spruce,
	pin oak	85	72	Scotch pine, black
	sugar maple	80	57	cherry, black
	tuliptree	90	86	locust, eastern
	white ash	---	0	cottonwood,
	white oak	---	0	eastern white
				pine, green ash,
				northern red oak,
				red pine,
				tuliptree, white
				ash, white oak,
				white spruce
OtA:				
Otego	black cherry	---	0	European larch,
	black walnut	---	0	Norway spruce,
	northern red oak	86	72	black walnut,
	sugar maple	---	0	eastern white pine
	tuliptree	95	100	
	white ash	85	57	
	white oak	85	72	
OuC:				
Otisville	black oak	60	43	European larch,
	eastern white pine	65	114	eastern white
	northern red oak	60	43	pine, red pine
	sugar maple	55	29	
	white oak	60	43	
PaA:				
Painesville	black cherry	---	0	American sycamore,
	northern red oak	80	57	black cherry,
	pin oak	90	72	black locust,
	red maple	---	0	eastern
	sugar maple	---	0	cottonwood,
	tuliptree	---	0	eastern white
	white ash	---	0	pine, green ash,
	white oak	---	0	northern red oak,
				red pine,
				tuliptree, white
				ash, white oak
PbA:				
Painesville	black cherry	---	0	American sycamore,
	northern red oak	80	57	black cherry,
	pin oak	90	72	black locust,
	red maple	---	0	eastern
	sugar maple	---	0	cottonwood,
	tuliptree	---	0	eastern white
	white ash	---	0	pine, green ash,
	white oak	---	0	northern red oak,
				red pine,
				tuliptree, white
				ash, white oak

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
PbA:				
Urban Land	---	---	---	---
PeC2:				
Pierpont	American beech	---	0	Virginia pine,
	American sycamore	---	0	black oak, eastern
	northern red oak	80	57	white pine, red
	slippery elm	---	0	pine, tuliptree,
	sugar maple	---	0	white ash
	white ash	---	0	
	white oak	---	0	
PeD:				
Pierpont	American beech	---	0	Virginia pine,
	American sycamore	---	0	black oak, eastern
	northern red oak	89	72	white pine, red
	slippery elm	---	0	pine, tuliptree,
	sugar maple	84	57	white ash
	tuliptree	90	86	
	white ash	82	86	
	white oak	---	0	
Pg:				
Pits, Gravel	---	---	---	---
Pk:				
Pits, Quarries	---	---	---	---
PrA:				
Platea	American beech	---	0	Virginia pine,
	American sycamore	---	0	green ash, red
	northern red oak	80	57	pine, tuliptree
	slippery elm	---	0	
	sugar maple	80	57	
	white ash	---	0	
	white oak	---	0	
Darien	black cherry	---	0	American sycamore,
	eastern cottonwood	---	0	European larch,
	green ash	---	0	Norway spruce,
	northern red oak	70	57	baldcypress,
	pin oak	---	0	eastern
	red maple	---	0	cottonwood,
	sugar maple	60	43	eastern white
	swamp white oak	---	0	pine, green ash,
				pin oak, red
				maple, swamp white
				oak, sweetgum,
				white spruce
PrB:				
Platea	American beech	---	0	Virginia pine,
	American sycamore	---	0	green ash, red
	northern red oak	80	57	pine, tuliptree
	slippery elm	---	0	
	sugar maple	80	57	
	white ash	---	0	
	white oak	---	0	

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
PrB:				
Darien	black cherry	---	0	American sycamore, European larch, Norway spruce, baldcypress, eastern cottonwood, eastern white pine, green ash, pin oak, red maple, swamp white oak, sweetgum, white spruce
	eastern cottonwood	---	0	
	green ash	---	0	
	northern red oak	70	57	
	pin oak	---	0	
	red maple	---	0	
	sugar maple	60	43	
	swamp white oak	---	0	
PrB2:				
Platea	American beech	---	0	Virginia pine, green ash, red pine, tuliptree
	American sycamore	---	0	
	northern red oak	80	57	
	slippery elm	---	0	
	sugar maple	80	57	
	white ash	---	0	
	white oak	---	0	
Darien	black cherry	---	0	American sycamore, European larch, Norway spruce, baldcypress, eastern cottonwood, eastern white pine, green ash, pin oak, red maple, swamp white oak, sweetgum, white spruce
	eastern cottonwood	---	0	
	green ash	---	0	
	northern red oak	70	57	
	pin oak	---	0	
	red maple	---	0	
	sugar maple	60	43	
	swamp white oak	---	0	
PtB:				
Platea	American beech	---	0	Virginia pine, green ash, red pine, tuliptree
	American sycamore	---	0	
	northern red oak	80	57	
	slippery elm	---	0	
	sugar maple	80	57	
	white ash	---	0	
	white oak	---	0	
Urban Land	---	---	---	---
PtC:				
Platea	American beech	---	0	Virginia pine, green ash, red pine, tuliptree
	American sycamore	---	0	
	northern red oak	80	57	
	slippery elm	---	0	
	sugar maple	80	57	
	white ash	---	0	
	white oak	---	0	
Urban Land	---	---	---	---
RhA:				
Red Hook	eastern white pine	70	129	Norway spruce, eastern white pine
	red maple	70	43	
RhB:				
Red Hook	eastern white pine	70	129	Norway spruce, eastern white pine
	red maple	70	43	

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
Rw:				
Riverwash	---	---	---	---
SbA:				
Sebring	black cherry	---	0	American sycamore, Norway spruce, Scotch pine, baldcypress, eastern cottonwood, eastern white pine, green ash, pin oak, red maple, silver maple, swamp white oak, sweetgum, white spruce
	eastern cottonwood	---	0	
	green ash	---	0	
	pin oak	90	72	
	red maple	---	0	
	swamp white oak	---	0	
StA:				
Stanhope	black cherry	---	0	American sycamore, Norway spruce, Scotch pine, black cherry, black locust, eastern cottonwood, eastern white pine, green ash, northern red oak, red pine, tuliptree, white ash, white oak, white spruce
	northern red oak	60	57	
	pin oak	85	72	
	sugar maple	80	57	
	tuliptree	90	86	
	white ash	---	0	
	white oak	---	0	
ToC:				
Towerville	black cherry	70	43	European larch, Norway spruce, eastern white pine
	northern red oak	70	57	
	sugar maple	63	43	
ToD:				
Towerville	black cherry	70	43	European larch, Norway spruce, eastern white pine
	northern red oak	70	57	
	sugar maple	63	43	
TyB:				
Tyner	eastern white pine	65	143	eastern white pine, jack pine, red pine
	jack pine	70	100	
	northern red oak	70	57	
	quaking aspen	72	86	
	red pine	72	129	
	white oak	70	57	
Otisville	black oak	60	43	European larch, eastern white pine, red pine
	eastern white pine	65	114	
	northern red oak	60	43	
	sugar maple	55	29	
	white oak	60	43	
Ud:				
Udorthents	---	---	---	---
Un:				
Urban Land	---	---	---	---

Table 12.—Woodland Productivity-Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
UrB:				
Urban Land	---	---	---	---
Elnora	eastern white pine	65	114	Norway spruce, eastern white pine
	northern red oak	60	43	
	sugar maple	55	29	
UtB:				
Urban Land	---	---	---	---
Tyner	eastern white pine	65	143	eastern white pine, jack pine, red pine
	jack pine	70	100	
	northern red oak	70	57	
	quaking aspen	72	86	
	red pine	72	129	
	white oak	70	57	
Otisville	black oak	60	43	European larch, eastern white pine, red pine
	eastern white pine	65	114	
	northern red oak	60	43	
	sugar maple	55	29	
	white oak	60	43	
VeA:				
Venango	American beech	---	0	Virginia pine, black oak, eastern white pine, red pine, tuliptree, white ash
	American sycamore	---	0	
	northern red oak	83	57	
	slippery elm	---	0	
	sugar maple	79	57	
	white ash	75	86	
	white oak	---	0	
VeB:				
Venango	American beech	---	0	Virginia pine, black oak, eastern white pine, red pine, tuliptree, white ash
	American sycamore	---	0	
	northern red oak	83	57	
	slippery elm	---	0	
	sugar maple	79	57	
	white ash	75	86	
	white oak	---	0	
W:				
Water	---	---	---	---
WcA:				
Wick	black cherry	---	0	American sycamore, baldcypress, eastern arborvitae, green ash, pin oak, red maple, silver maple, swamp white oak, sweetgum
	eastern cottonwood	---	0	
	green ash	---	0	
	pin oak	90	72	
	red maple	65	43	
	swamp white oak	---	0	
WeA:				
Willette	black ash	---	0	black willow, green ash, red maple
	eastern arborvitae	27	43	
	red maple	51	29	
	silver maple	76	29	
	tamarack	45	29	
	white ash	51	29	

Table 13.—Woodland Harvesting Activities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Depth to saturated zone	0.50		
BkB:						
Blakeslee	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Depth to saturated zone	0.50		
BkC:						
Blakeslee	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Slope	0.50		
			Low strength	0.50		
			Depth to saturated zone	0.50		
CaB:						
Cambridge	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Depth to saturated zone	0.50		
CaC:						
Cambridge	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Slope	0.50		
			Low strength	0.50		
			Depth to saturated zone	0.50		
CaD:						
Cambridge	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Slope	0.50	Slope	1.00		
	Low strength	0.50	Low strength	0.50		
			Depth to saturated zone	0.50		
CcA:						
Canadice	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Ponding	1.00	Low strength	0.50
			Depth to saturated zone	1.00		
			Low strength	0.50		

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CdA:						
Caneadea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
CdB:						
Caneadea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
CeA:						
Caneadea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
Canadice	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Ponding	1.00	Low strength	0.50
			Depth to saturated zone	1.00		
			Low strength	0.50		
CfC2:						
Cardinal	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Slope	0.50		
			Low strength	0.50		
			Depth to saturated zone	0.50		
CfD2:						
Cardinal	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Slope	1.00		
			Low strength	0.50		
			Depth to saturated zone	0.50		
CfF:						
Cardinal	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Slope	1.00	Slope	0.50
	Slope	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
			Depth to saturated zone	0.50		
CgA:						
Carlisle	Severe		Poorly suited		Poorly suited	
	Low strength	1.00	Ponding	1.00	Low strength	1.00
	Wetness	1.00	Low strength	1.00	Wetness	1.00
			Depth to saturated zone	1.00		
CkA:						
Chenango	Slight		Well suited		Well suited	

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CkB:						
Chenango	Slight		Well suited		Well suited	
CkC:						
Chenango	Severe		Poorly suited		Well suited	
	Soil slippage	1.00	Soil slippage	1.00		
			Slope	0.50		
CkD:						
Chenango	Severe		Poorly suited		Well suited	
	Soil slippage	1.00	Soil slippage	1.00		
	Slope	0.50	Slope	1.00		
	Too sandy	0.50				
CoB:						
Colonie	Slight		Well suited		Well suited	
CoD:						
Colonie	Severe		Poorly suited		Well suited	
	Soil slippage	1.00	Soil slippage	1.00		
			Slope	1.00		
CpB:						
Colonie	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
CuA:						
Conneaut	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated					
DeC:						
Darien	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Depth to saturated zone	1.00		
			Slope	0.50		
			Low strength	0.50		
Platea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Slope	0.50		
			Low strength	0.50		

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeC2:						
Darien	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Slope	0.50		
			Low strength	0.50		
Platea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Slope	0.50		
			Low strength	0.50		
DhB:						
Darien	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
Hornell	Moderate		Poorly suited		Moderately suited	
	Depth to bedrock	0.50	Depth to saturated zone	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
EnB:						
Elnora	Slight		Moderately suited		Well suited	
			Depth to saturated zone	0.50		
FcA:						
Fitchville	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
FcB:						
Fitchville	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
GaF:						
Gageville	Severe		Poorly suited		Poorly suited	
	Soil slippage	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
			Depth to saturated zone	0.50		
GfA:						
Glenford	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Depth to saturated zone	0.50		
GfB:						
Glenford	Moderate		Moderately suited		Moderately suited	
	Low strength	0.50	Low strength	0.50	Low strength	0.50
			Depth to saturated zone	0.50		

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GfC:						
Glenford	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Slope	0.50		
			Low strength	0.50		
			Depth to saturated zone	0.50		
GfD:						
Glenford	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Slope	0.50	Slope	1.00		
	Low strength	0.50	Low strength	0.50		
			Depth to saturated zone	0.50		
HaA:						
Harbor	Severe		Poorly suited		Well suited	
	Soil slippage	1.00	Soil slippage	1.00		
			Depth to saturated zone	0.50		
HaC:						
Harbor	Slight		Moderately suited		Well suited	
			Slope	0.50		
			Depth to saturated zone	0.50		
HbB:						
Harbor	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Depth to saturated zone	1.00		
			Low strength	0.50		
HoA:						
Hornell	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
HoB:						
Hornell	Severe		Poorly suited		Moderately suited	
	Depth to bedrock	1.00	Depth to saturated zone	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
KfA:						
Kingsville	Severe		Poorly suited		Poorly suited	
	Wetness	1.00	Ponding	1.00	Wetness	1.00
			Depth to saturated zone	1.00		
La:						
Landfills	Not rated		Not rated		Not rated	

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MhA:						
Mill	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Ponding	1.00	Low strength	0.50
			Depth to saturated zone	1.00		
			Low strength	0.50		
MtA:						
Mitiwanga	Moderate		Poorly suited		Moderately suited	
	Depth to bedrock	0.50	Depth to saturated zone	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
MtB:						
Mitiwanga	Moderate		Poorly suited		Moderately suited	
	Depth to bedrock	0.50	Depth to saturated zone	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
OrA:						
Orrville	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Depth to saturated zone	1.00		
			Low strength	0.50		
OtA:						
Otego	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
			Depth to saturated zone	0.50		
OuC:						
Otisville	Severe		Poorly suited		Well suited	
	Soil slippage	1.00	Soil slippage	1.00		
			Slope	0.50		
PaA:						
Painesville	Slight		Poorly suited		Well suited	
			Depth to saturated zone	1.00		
PbA:						
Painesville	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Slope	0.50		
			Low strength	0.50		
			Depth to saturated zone	0.50		

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeD:						
Pierpont	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Slope	0.50	Slope	1.00		
	Low strength	0.50	Low strength	0.50		
			Depth to saturated zone	0.50		
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
Darien	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
PrB:						
Platea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
Darien	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
PrB2:						
Platea	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
Darien	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
PtB:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RhB:						
Red Hook	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Ponding	1.00	Low strength	0.50
			Depth to saturated zone	1.00		
			Low strength	0.50		
StA:						
Stanhope	Severe		Poorly suited		Moderately suited	
	Flooding	1.00	Flooding	1.00	Low strength	0.50
	Low strength	0.50	Depth to saturated zone	1.00		
			Low strength	0.50		
ToC:						
Towerville	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Low strength	0.50	Slope	0.50		
			Low strength	0.50		
			Depth to saturated zone	0.50		
ToD:						
Towerville	Severe		Poorly suited		Moderately suited	
	Soil slippage	1.00	Soil slippage	1.00	Low strength	0.50
	Slope	0.50	Slope	1.00		
	Low strength	0.50	Low strength	0.50		
			Depth to saturated zone	0.50		
TyB:						
Tyner	Slight		Well suited		Well suited	
Otisville	Slight		Well suited		Well suited	
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Not rated		Not rated		Not rated	
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Not rated		Not rated		Not rated	
Otisville	Not rated		Not rated		Not rated	

Table 13.—Woodland Harvesting Activities—Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for roads (natural surface)		Harvest equipment operability	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VeA:						
Venango	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
VeB:						
Venango	Moderate		Poorly suited		Moderately suited	
	Low strength	0.50	Depth to saturated zone	1.00	Low strength	0.50
			Low strength	0.50		
W:						
Water	Not rated					
WcA:						
Wick	Severe		Poorly suited		Poorly suited	
	Flooding	1.00	Flooding	1.00	Wetness	1.00
	Wetness	1.00	Depth to saturated zone	1.00	Low strength	0.50
	Low strength	0.50	Low strength	0.50		
WeA:						
Willette	Severe		Poorly suited		Poorly suited	
	Low strength	1.00	Ponding	1.00	Low strength	1.00
	Wetness	1.00	Low strength	1.00	Wetness	1.00
			Depth to saturated zone	1.00		

Table 14.—Woodland Regeneration Activities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		Potential for damage to soil by fire	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated			
BkA:						
Blakeslee	Well suited		Well suited		Low Texture/rock fragments	0.01
BkB:						
Blakeslee	Well suited		Well suited		Low Texture/rock fragments	0.01
BkC:						
Blakeslee	Moderately suited Slope	0.50	Well suited		Low Texture/rock fragments	0.01
CaB:						
Cambridge	Well suited		Well suited		Low Texture/surface depth/rock fragments	0.30
CaC:						
Cambridge	Moderately suited Slope	0.50	Well suited		Low Texture/rock fragments	0.01
CaD:						
Cambridge	Poorly suited Slope	0.75	Poorly suited Slope	0.75	Low Texture/rock fragments	0.01
CcA:						
Canadice	Well suited		Well suited		Low Texture/rock fragments	0.01
CdA:						
Caneadea	Moderately suited Stickiness	0.50	Well suited		Low Texture/rock fragments	0.01
CdB:						
Caneadea	Moderately suited Stickiness	0.50	Well suited		Low Texture/surface depth/rock fragments	0.30
CeA:						
Caneadea	Moderately suited Stickiness	0.50	Well suited		Low Texture/rock fragments	0.01

Table 14.—Woodland Regeneration Activities—Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		Potential for damage to soil by fire	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CeA:						
Canadice	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
CfC2:						
Cardinal	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
CfD2:						
Cardinal	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
CfF:						
Cardinal	Unsuited		Poorly suited		Low	
	Slope	1.00	Slope	0.75	Texture/rock fragments	0.01
CgA:						
Carlisle	Poorly suited		Poorly suited		Low	
	Wetness	0.75	Wetness	0.75		
CkA:						
Chenango	Unsuited		Poorly suited		Low	
	Rock fragment content	0.94	Rock fragment content	0.50	Texture/rock fragments	0.01
CkB:						
Chenango	Unsuited		Poorly suited		Low	
	Rock fragment content	0.87	Rock fragment content	0.50	Texture/rock fragments	0.01
CkC:						
Chenango	Unsuited		Poorly suited		Low	
	Rock fragment content	0.87	Rock fragment content	0.50	Texture/rock fragments	0.01
	Slope	0.50				
CkD:						
Chenango	Unsuited		Poorly suited		Low	
	Rock fragment content	0.97	Slope	0.75	Texture/surface depth/rock fragments	0.30
	Slope	0.75	Rock fragment content	0.50		
CoB:						
Colonie	Well suited		Well suited		High	
					Texture/rock fragments	1.00
CoD:						
Colonie	Moderately suited		Well suited		High	
	Slope	0.50			Texture/rock fragments	1.00
CpB:						
Colonie	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated			

Table 14.—Woodland Regeneration Activities—Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		Potential for damage to soil by fire	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CtA:						
Conneaut	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
CuA:						
Conneaut	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated			
DAM:						
DeC:						
Darien	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
Platea	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
DeC2:						
Darien	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
Platea	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
DhB:						
Darien	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
Hornell	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
	Stickiness	0.50				
EnB:						
Elnora	Well suited		Well suited		Moderate	
					Texture/rock fragments	0.50
FcA:						
Fitchville	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
FcB:						
Fitchville	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
GaF:						
Gageville	Unsuited		Unsuited		Low	
	Slope	1.00	Slope	1.00	Texture/rock fragments	0.01
GfA:						
Glenford	Well suited		Well suited		Low	
					Texture/rock fragments	0.01

Table 14.—Woodland Regeneration Activities—Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		Potential for damage to soil by fire	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GfB:						
Glenford	Well suited		Well suited		Low Texture/rock fragments	0.01
GfC:						
Glenford	Moderately suited Slope	0.50	Well suited		Low Texture/rock fragments	0.01
GfD:						
Glenford	Poorly suited Slope	0.75	Poorly suited Slope	0.75	Low Texture/rock fragments	0.01
HaA:						
Harbor	Well suited		Well suited		Low Texture/rock fragments	0.01
HaC:						
Harbor	Moderately suited Slope	0.50	Well suited		Low Texture/rock fragments	0.01
HbB:						
Harbor	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated			
HmA:						
Holly	Well suited		Well suited		Low Texture/rock fragments	0.01
HoA:						
Hornell	Moderately suited Stickiness	0.50	Well suited		Low Texture/rock fragments	0.01
HoB:						
Hornell	Moderately suited Stickiness	0.50	Unsuited Depth to bedrock	1.00	Low Texture/rock fragments	0.01
KfA:						
Kingsville	Poorly suited Wetness	0.75	Poorly suited Wetness	0.75	Moderate Texture/rock fragments	0.50
La:						
Landfills	Not rated		Not rated			
MhA:						
Mill	Well suited		Well suited		Low Texture/rock fragments	0.01
MtA:						
Mitiwanga	Well suited		Well suited		Low Texture/rock fragments	0.01

Table 14.—Woodland Regeneration Activities—Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		Potential for damage to soil by fire	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MtB:						
Mitiwanga	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
OrA:						
Orrville	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
OtA:						
Otego	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
OuC:						
Otisville	Poorly suited		Poorly suited		Low	
	Rock fragment content	0.58	Rock fragment content	0.50	Texture/rock fragments	0.01
	Slope	0.50				
PaA:						
Painesville	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
PbA:						
Painesville	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated			
PeC2:						
Pierpont	Moderately suited		Well suited		Low	
	Slope	0.50			Texture/rock fragments	0.01
PeD:						
Pierpont	Poorly suited		Poorly suited		Low	
	Slope	0.75	Slope	0.75	Texture/rock fragments	0.01
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	
Pk:						
Pits, Quarries	Not rated		Not rated			
PrA:						
Platea	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
Darien	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
PrB:						
Platea	Well suited		Well suited		Low	
					Texture/rock fragments	0.01

Table 14.—Woodland Regeneration Activities—Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		Potential for damage to soil by fire	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PrB:						
Darien	Moderately suited Slope	0.50	Well suited		Low Texture/rock fragments	0.01
PrB2:						
Platea	Well suited		Well suited		Low Texture/rock fragments	0.01
Darien	Well suited		Well suited		Low Texture/surface depth/rock fragments	0.30
PtB:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated			
PtC:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated			
RhA:						
Red Hook	Well suited		Well suited		Low Texture/rock fragments	0.01
RhB:						
Red Hook	Well suited		Well suited		Low Texture/rock fragments	0.01
Rw:						
Riverwash	Not rated		Not rated			
SbA:						
Sebring	Well suited		Well suited		Low Texture/rock fragments	0.01
StA:						
Stanhope	Well suited		Well suited		Low Texture/rock fragments	0.01
ToC:						
Towerville	Moderately suited Slope	0.50	Well suited		Low Texture/rock fragments	0.01
ToD:						
Towerville	Poorly suited Slope	0.75	Poorly suited Slope	0.75	Low Texture/rock fragments	0.01
TyB:						
Tyner	Well suited		Well suited		High Texture/rock fragments	1.00

Table 14.—Woodland Regeneration Activities—Continued

Map symbol and soil name	Suitability for mechanical planting		Suitability for site preparation		Potential for damage to soil by fire	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TyB:						
Otisville	Unsuited		Poorly suited		Low	
	Rock fragment content	0.97	Rock fragment content	0.50	Texture/rock fragments	0.30
	Slope	0.50				
Ud:						
Udorthents	Not rated		Not rated			
Un:						
Urban Land	Not rated		Not rated			
UrB:						
Urban Land	Not rated		Not rated			
Elnora	Not rated		Not rated		Not rated	
UtB:						
Urban Land	Not rated		Not rated			
Tyner	Not rated		Not rated		Not rated	
Otisville	Not rated		Not rated		Not rated	
VeA:						
Venango	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
VeB:						
Venango	Well suited		Well suited		Low	
					Texture/rock fragments	0.01
W:						
WcA:						
Wick	Poorly suited		Poorly suited		Low	
	Wetness	0.75	Wetness	0.50	Texture/rock fragments	0.30
WeA:						
Willette	Poorly suited		Poorly suited		Low	
	Wetness	0.75	Wetness	0.75		

Table 15.—Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of—				
	<8	8-15	16-25	26-35	>35
Be:					
Beaches	---	---	---	---	---
BkA:					
Blakeslee	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
BkB:					
Blakeslee	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
BkC:					
Blakeslee	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
CaB:					
Cambridge	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
CaC:					
Cambridge	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
CaD:					
Cambridge	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
CcA:					
Canadice	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak

Table 15.—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
CdA:					
Caneadea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
CdB:					
Caneadea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
CeA:					
Caneadea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
Canadice	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
CfC2:					
Cardinal	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
CfD2:					
Cardinal	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
CfF:					
Cardinal	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---

Table 15.—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
CgA:					
Carlisle	common ninebark; sargent crabapple; silky dogwood	American cranberrybush; common lilac; nannyberry; southern arrowwood	---	eastern white pine; green ash; Norway spruce	imperial Carolina poplar
CkA:					
Chenango	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; eastern white pine; jack pine; red pine	---	---
CkB:					
Chenango	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; eastern white pine; jack pine; red pine	---	---
CkC:					
Chenango	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; eastern white pine; jack pine; red pine	---	---
CkD:					
Chenango	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; eastern white pine; jack pine; red pine	---	---
CoB:					
Colonie	Amur honeysuckle; common lilac; Siberian peashrub	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---
CoD:					
Colonie	Amur honeysuckle; common lilac; Siberian peashrub	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---

Table 15.—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
CpB:					
Colonie	Amur honeysuckle; common lilac; Siberian peashrub	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---
Urban Land	---	---	---	---	---
CtA:					
Conneaut	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
CuA:					
Conneaut	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
Urban Land	---	---	---	---	---
DAM:					
Dam	---	---	---	---	---
DeC:					
Darien	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
Platea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
DeC2:					
Darien	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
Platea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---

Table 15.—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
DhB:					
Darien	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
Hornell	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Tatarian honeysuckle; Washington hawthorn	Austrian pine; common hackberry; osageorange	eastern white pine; pin oak	---
EnB:					
Elnora	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
FcA:					
Fitchville	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
FcB:					
Fitchville	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
GaF:					
Gageville	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
GfA:					
Glenford	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
GfB:					
Glenford	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak

Table 15.—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
GfC:					
Glenford	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
GfD:					
Glenford	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
HaA:					
Harbor	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---
HaC:					
Harbor	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---
HbB:					
Harbor	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---
Urban Land	---	---	---	---	---
HmA:					
Holly	silky dogwood	American cranberrybush; Amur honeysuckle	Amur privet; Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
HoA:					
Hornell	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Tatarian honeysuckle; Washington hawthorn	Austrian pine; common hackberry; osageorange	eastern white pine; pin oak	---

Table 15.—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
HoB:					
Hornell	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Tatarian honeysuckle; Washington hawthorn	Austrian pine; common hackberry; osageorange	eastern white pine; pin oak	---
KfA:					
Kingsville	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
La:					
Landfills	---	---	---	---	---
MhA:					
Mill	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
MtA:					
Mitiwanga	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
MtB:					
Mitiwanga	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
OrA:					
Orrville	silky dogwood	American cranberrybush; Amur honeysuckle	Amur privet; blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
OtA:					
Otego	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak

Table 15.—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
OuC:					
Otisville	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; eastern white pine; jack pine; red pine	---	---
PaA:					
Painesville	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
PbA:					
Painesville	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
Urban Land	---	---	---	---	---
PeC2:					
Pierpont	American cranberrybush	Amur honeysuckle; Amur privet; southern arrowwood; Tatarian honeysuckle	Austrian pine; eastern redcedar; green ash; osageorange; Washington hawthorn	eastern white pine; pin oak	---
PeD:					
Pierpont	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
Pg:					
Pits, Gravel	---	---	---	---	---
Pk:					
Pits, Quarries	---	---	---	---	---
PrA:					
Platea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---

Table 15.—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
PrA:					
Darien	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
PrB:					
Platea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
Darien	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
PrB2:					
Platea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
Darien	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
PtB:					
Platea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
Urban Land	---	---	---	---	---
PtC:					
Platea	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
Urban Land	---	---	---	---	---

Table 15.—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
RhA:					
Red Hook	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
RhB:					
Red Hook	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
Rw:					
Riverwash	---	---	---	---	---
SbA:					
Sebring	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
StA:					
Stanhope	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
ToC:					
Towerville	Siberian peashrub	Amur honeysuckle; eastern redcedar; Washington hawthorn	Austrian pine; eastern white pine; osageorange	white ash	---
ToD:					
Towerville	Siberian peashrub	Amur honeysuckle; eastern redcedar; Washington hawthorn	Austrian pine; eastern white pine; osageorange	white ash	---
TyB:					
Tyner	Amur honeysuckle; common lilac; Siberian peashrub	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---
Otisville	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; eastern white pine; jack pine; red pine	---	---

Table 15.—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
Ud:					
Udorthents	---	---	---	---	---
Un:					
Urban Land	---	---	---	---	---
UrB:					
Urban Land	---	---	---	---	---
Elnora	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	blue spruce; eastern arborvitae; Washington hawthorn; white fir	Austrian pine; Norway spruce	eastern white pine; pin oak
UtB:					
Urban Land	---	---	---	---	---
Tyner	Amur honeysuckle; common lilac; Siberian peashrub	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; jack pine; red pine	eastern white pine	---
Otisville	Amur honeysuckle; common lilac; Siberian peashrub; Tatarian honeysuckle	autumn olive; eastern redcedar; radiant crabapple; Washington hawthorn	Austrian pine; eastern white pine; jack pine; red pine	---	---
VeA:					
Venango	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Tatarian honeysuckle; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---
VeB:					
Venango	American cranberrybush	Amur honeysuckle; Amur privet; eastern redcedar; southern arrowwood; Tatarian honeysuckle; Washington hawthorn	Austrian pine; green ash; osageorange	eastern white pine; pin oak	---

Table 15.—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
W:					
Water	---	---	---	---	---
WcA:					
Wick	silky dogwood	American cranberrybush; Amur honeysuckle; Amur privet	Austrian pine; blue spruce; eastern arborvitae; Washington hawthorn; white fir	eastern white pine; Norway spruce	pin oak
WeA:					
Willette	common ninebark; silky dogwood; whitebelle honeysuckle	Amur honeysuckle; Amur privet; nannyberry	tall purple willow	black willow; golden willow	imperial Carolina poplar

Table 16.—Recreational Development Part 1

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of the 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
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.87	Depth to saturated zone	0.50	Depth to saturated zone	0.87
BkB:						
Blakeslee	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.93	Depth to saturated zone	0.58	Depth to saturated zone	0.93
					Slope	0.50
BkC:						
Blakeslee	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.87	Depth to saturated zone	0.50	Slope	1.00
					Depth to saturated zone	0.87
CaB:						
Cambridge	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.75	Depth to saturated zone	0.38	Depth to saturated zone	0.75
					Gravel content	0.22
CaC:						
Cambridge	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.84	Depth to saturated zone	1.00
	Slope	0.32	Slope	0.32	Slope	1.00
					Gravel content	0.22
CaD:						
Cambridge	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.99	Slope	0.99	Slope	1.00
	Slope	0.99	Depth to saturated zone	0.76	Depth to saturated zone	0.99
					Gravel content	0.22
CcA:						
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
CdA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00

Table 16.—Recreational Development Part 1—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
CdB:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
					Slope	0.13
CeA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
CfC2:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Slope	0.01	Slope	0.01	Restricted permeability	0.96
CfD2:						
Cardinal	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Slope	0.88	Slope	1.00
	Slope	0.88	Depth to saturated zone	0.84	Restricted permeability	0.96
CfF:						
Cardinal	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
	Depth to saturated zone	0.75	Depth to saturated zone	0.38	Depth to saturated zone	0.75
CgA:						
Carlisle	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Gravel content	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Gravel content	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Gravel content	1.00	Ponding	1.00

Table 16.—Recreational Development Part 1—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
CkA:						
Chenango	Somewhat limited		Somewhat limited		Very limited	
	Gravel content	0.08	Gravel content	0.08	Gravel content	1.00
CkB:						
Chenango	Somewhat limited		Somewhat limited		Very limited	
	Gravel content	0.08	Gravel content	0.08	Gravel content	1.00
					Slope	0.13
CkC:						
Chenango	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.32	Slope	0.32	Slope	1.00
	Gravel content	0.08	Gravel content	0.08	Gravel content	1.00
CkD:						
Chenango	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.08	Gravel content	0.08	Gravel content	1.00
CoB:						
Colonie	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.64	Too sandy	0.64	Too sandy	0.64
					Slope	0.50
CoD:						
Colonie	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.88	Slope	0.88	Slope	1.00
	Too sandy	0.64	Too sandy	0.64	Too sandy	0.64
CpB:						
Colonie	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.64	Too sandy	0.64	Too sandy	0.64
					Slope	0.50
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	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
CuA:						
Conneaut	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
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.16	Slope	0.16	Restricted permeability	0.21

Table 16.—Recreational Development Part 1—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
DeC:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.01	Slope	0.01	Restricted permeability	0.21
DeC2:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.01	Slope	0.01	Restricted permeability	0.21
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.01	Slope	0.01	Restricted permeability	0.21
DhB:						
Darien	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
					Slope	0.13
Hornell	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	0.98	Restricted permeability	0.98	Restricted permeability	0.98
					Slope	0.88
					Depth to bedrock	0.20
EnB:						
Elnora	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.87	Depth to saturated zone	0.50	Depth to saturated zone	0.87
	Too sandy	0.31	Too sandy	0.31	Too sandy	0.31
					Slope	0.13
FcA:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 16.—Recreational Development Part 1—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
FcB:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
GaF:						
Gageville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.75	Depth to saturated zone	0.38	Depth to saturated zone	0.75
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
GfA:						
Glenford	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.84	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
GfB:						
Glenford	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
GfC:						
Glenford	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.91	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.16	Slope	0.16	Restricted permeability	0.21
GfD:						
Glenford	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.93	Depth to saturated zone	0.58	Depth to saturated zone	0.93
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
HaA:						
Harbor	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.69	Depth to saturated zone	0.98
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
					Gravel content	0.06

Table 16.—Recreational Development Part 1—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
HaC:						
Harbor	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.75	Restricted permeability	0.43	Slope	1.00
	Restricted permeability	0.43	Depth to saturated zone	0.38	Depth to saturated zone	0.75
	Slope	0.32	Slope	0.32	Restricted permeability	0.43
					Gravel content	0.06
HbB:						
Harbor	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.69	Depth to saturated zone	0.98
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
					Gravel content	0.06
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	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
HoA:						
Hornell	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	0.98	Restricted permeability	0.98	Restricted permeability	0.98
HoB:						
Hornell	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	0.98	Restricted permeability	0.98	Restricted permeability	0.98
					Slope	0.50
					Depth to bedrock	0.35
KfA:						
Kingsville	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
	Too sandy	0.79	Too sandy	0.79	Too sandy	0.79
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21

Table 16.—Recreational Development Part 1—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
MtA:						
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
					Gravel content	0.76
MtB:						
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
					Gravel content	0.76
					Depth to bedrock	0.35
					Slope	0.13
OrA:						
Orrville	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
OtA:						
Otego	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.76	Flooding	1.00
	Depth to saturated zone	0.99	Flooding	0.40	Depth to saturated zone	0.99
OuC:						
Otisville	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.32	Slope	0.32	Slope	1.00
	Gravel content	0.18	Gravel content	0.18	Gravel content	1.00
PaA:						
Painesville	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
PbA:						
Painesville	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
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	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	0.01	Slope	0.01	Slope	1.00
PeD:						
Pierpont	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Slope	0.99	Depth to saturated zone	1.00
	Slope	0.99	Depth to saturated zone	0.97	Slope	1.00

Table 16.—Recreational Development Part 1—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
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	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
Darien	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
PrB:						
Platea	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
					Slope	0.13
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.88
					Restricted permeability	0.21
PrB2:						
Platea	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
					Slope	0.13
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
PtB:						
Platea	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
					Slope	0.13
Urban Land	Not rated		Not rated		Not rated	

Table 16.—Recreational Development Part 1—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
PtC:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	1.00
	Slope	0.01	Slope	0.01	Restricted permeability	0.21
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Gravel content	0.06
RhB:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Gravel content	0.18
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
StA:						
Stanhope	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
ToC:						
Towerville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Slope	1.00
	Slope	0.32	Slope	0.32	Restricted permeability	0.43
					Depth to bedrock	0.16
					Gravel content	0.11
ToD:						
Towerville	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Slope	0.99	Depth to saturated zone	1.00
	Slope	0.99	Depth to saturated zone	0.84	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
					Depth to bedrock	0.29
					Gravel content	0.11

Table 16.—Recreational Development Part 1—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
TyB:						
Tyner	Somewhat limited Too sandy	 0.33	Somewhat limited Too sandy	 0.33	Somewhat limited Too sandy Slope	 0.33 0.13
Otisville	Somewhat limited Gravel content	 0.18	Somewhat limited Gravel content	 0.18	Very limited Gravel content Slope	 1.00 0.88
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Somewhat limited Depth to saturated zone Too sandy	 0.87 0.31	Somewhat limited Depth to saturated zone Too sandy	 0.50 0.31	Somewhat limited Depth to saturated zone Too sandy Slope	 0.87 0.31 0.13
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Somewhat limited Too sandy	 0.33	Somewhat limited Too sandy	 0.33	Somewhat limited Too sandy Slope	 0.33 0.13
Otisville	Somewhat limited Gravel content	 0.18	Somewhat limited Gravel content	 0.18	Very limited Gravel content Slope	 1.00 0.88
VeA:						
Venango	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00
VeB:						
Venango	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone	 1.00	Very limited Depth to saturated zone Slope	 1.00 0.13
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	Very limited Depth to saturated zone Flooding	 1.00 1.00	Very limited Depth to saturated zone Flooding	 1.00 0.40	Very limited Depth to saturated zone Flooding	 1.00 1.00

Table 16.—Recreational Development Part 1—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
WeA:						
Willette	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Gravel content	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Gravel content	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Gravel content	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96

Table 17.—Recreational Development Part 2

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of the ratings in this table.)

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
BkB:						
Blakeslee	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.18	Depth to saturated zone	0.18	Depth to saturated zone	0.56
BkC:						
Blakeslee	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.11	Depth to saturated zone	0.11	Depth to saturated zone	0.48
CaB:						
Cambridge	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.04	Depth to saturated zone	0.04	Depth to saturated zone	0.35
CaC:						
Cambridge	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to saturated zone	0.83
	Depth to saturated zone	0.62	Depth to saturated zone	0.62	Slope	0.16
					Droughty	0.01
CaD:						
Cambridge	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.99
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
	Slope	0.11				
CcA:						
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
CdA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CdB:						
Caneadea	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 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CeA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
CfC2:						
Cardinal	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	0.01
CfD2:						
Cardinal	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
	Depth to saturated zone	0.62	Depth to saturated zone	0.62	Depth to saturated zone	0.83
	Slope	0.05				
CfF:						
Cardinal	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.80	Depth to saturated zone	0.35
	Depth to saturated zone	0.04	Depth to saturated zone	0.04		
CgA:						
Carlisle	Very limited		Very limited		Very limited	
	Gravel content	1.00	Gravel content	1.00	Ponding	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	Gravel content	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
CkA:						
Chenango	Not limited		Not limited		Somewhat limited	
					Gravel content	0.08
					Droughty	0.08
CkB:						
Chenango	Not limited		Not limited		Somewhat limited	
					Gravel content	0.08
CkC:						
Chenango	Not limited		Not limited		Somewhat limited	
					Slope	0.16
					Gravel content	0.08
					Droughty	0.03
CkD:						
Chenango	Somewhat limited		Not limited		Very limited	
	Slope	0.43			Slope	1.00
					Droughty	0.25
					Gravel content	0.08

Table 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CoB:						
Colonie	Somewhat limited		Not limited		Somewhat limited	
	Too sandy	0.64			Droughty	0.42
CoD:						
Colonie	Somewhat limited		Not limited		Somewhat limited	
	Too sandy	0.64			Slope	0.96
	Slope	0.05			Droughty	0.45
CpB:						
Colonie	Somewhat limited		Not limited		Somewhat limited	
	Too sandy	0.64			Droughty	0.42
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CuA:						
Conneaut	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	1.00	Water erosion	1.00	Slope	0.04
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	0.04
					Slope	0.01
DeC2:						
Darien	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	0.01
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	0.04
					Slope	0.01
DhB:						
Darien	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 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DhB:						
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Depth to bedrock	0.20
EnB:						
Elnora	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.31	Depth to saturated zone	0.11	Droughty	0.70
	Depth to saturated zone	0.11			Depth to saturated zone	0.48
FcA:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
FcB:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
GaF:						
Gageville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.95	Depth to saturated zone	0.35
	Depth to saturated zone	0.04	Depth to saturated zone	0.04		
GfA:						
Glenford	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.62	Depth to saturated zone	0.62	Depth to saturated zone	0.83
GfB:						
Glenford	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
GfC:						
Glenford	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Depth to saturated zone	0.90
	Depth to saturated zone	0.78	Depth to saturated zone	0.78	Slope	0.04
GfD:						
Glenford	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.30	Depth to saturated zone	0.18	Depth to saturated zone	0.56
	Depth to saturated zone	0.18				
HaA:						
Harbor	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.32	Depth to saturated zone	0.32	Depth to saturated zone	0.68

Table 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HaC:						
Harbor	Somewhat limited Depth to saturated zone	0.04	Somewhat limited Depth to saturated zone	0.04	Somewhat limited Depth to saturated zone Slope	0.35 0.16
HbB:						
Harbor	Somewhat limited Depth to saturated zone	0.32	Somewhat limited Depth to saturated zone	0.32	Somewhat limited Depth to saturated zone	0.68
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00
HoA:						
Hornell	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to bedrock Droughty	1.00 0.65 0.01
HoB:						
Hornell	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to bedrock	1.00 0.35
KfA:						
Kingsville	Very limited Depth to saturated zone Ponding Too sandy	1.00 1.00 0.79	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone Droughty	1.00 1.00 0.02
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
MtA:						
Mitiwanga	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to bedrock	1.00 0.46
MtB:						
Mitiwanga	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Depth to bedrock	1.00 0.35

Table 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OrA:						
Orrville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
OtA:						
Otego	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
OuC:						
Otisville	Not limited		Not limited		Somewhat limited	
					Droughty	0.96
					Gravel content	0.18
					Slope	0.16
PaA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PbA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	0.01
					Slope	0.01
PeD:						
Pierpont	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.99
	Depth to saturated zone	0.92	Depth to saturated zone	0.92	Depth to saturated zone	0.96
	Slope	0.11				
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Darien	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 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PrB:						
Platea	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Droughty	1.00 0.27
Darien	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
PrB2:						
Platea	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Droughty	1.00 0.27
Darien	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
PtB:						
Platea	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Droughty	1.00 0.27
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Droughty Slope	1.00 0.04 0.01
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
RhB:						
Red Hook	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Depth to saturated zone Ponding	1.00 1.00
StA:						
Stanhope	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Flooding Depth to saturated zone	1.00 1.00

Table 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ToC:						
Towerville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	1.00	Water erosion	1.00	Slope	0.16
					Depth to bedrock	0.16
ToD:						
Towerville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.99
	Depth to saturated zone	0.62	Depth to saturated zone	0.62	Depth to saturated zone	0.83
	Slope	0.11			Depth to bedrock	0.29
TyB:						
Tyner	Somewhat limited		Not limited		Somewhat limited	
	Too sandy	0.33			Droughty	0.01
Otisville	Not limited		Not limited		Somewhat limited	
					Droughty	0.92
					Gravel content	0.18
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.31	Depth to saturated zone	0.11	Droughty	0.70
	Depth to saturated zone	0.11			Depth to saturated zone	0.48
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Somewhat limited		Not limited		Somewhat limited	
	Too sandy	0.33			Droughty	0.01
Otisville	Not limited		Not limited		Somewhat limited	
					Droughty	0.92
					Gravel content	0.18
VeA:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Droughty	0.02
VeB:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
W:						
Water	Not rated		Not rated		Not rated	

Table 17.—Recreational Development Part 2—Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WcA:						
Wick	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
WeA:						
Willette	Very limited		Very limited		Very limited	
	Gravel content	1.00	Gravel content	1.00	Ponding	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	Gravel content	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 18.—Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable.)

Map symbol and soil name	Potential for habitat elements							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
Be:										
Beaches	---	---	---	---	---	---	---	---	---	---
BkA:										
Blakeslee	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Good	Good	Very poor.
BkB:										
Blakeslee	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Good	Good	Very poor.
BkC:										
Blakeslee	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Good	Good	Very poor.
CaB:										
Cambridge	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Good	Good	Very poor.
CaC:										
Cambridge	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Good	Good	Very poor.
CaD:										
Cambridge	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Good	Very poor.
CcA:										
Canadice	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
CdA:										
Caneadea	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Good	Good	Fair.
CdB:										
Caneadea	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Good	Good	Very poor.
CeA:										
Caneadea	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Good	Good	Fair.
Canadice	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
CfC2:										
CARDINAL	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
CfD2:										
Cardinal	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
CfF:										
Cardinal	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
CgA:										
Carlisle	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.

Table 18.—Wildlife Habitat—Continued

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
CkA:										
Chenango	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CkB:										
Chenango	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CkC:										
Chenango	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CkD:										
Chenango	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CoB:										
Colonie	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CoD:										
Colonie	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
CpB:										
Colonie	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban Land	---	---	---	---	---	---	---	---	---	---
CtA:										
Conneaut	Fair	Fair	Fair	Poor	Poor	Good	Good	Fair	Fair	Good.
CuA:										
Conneaut	Fair	Fair	Fair	Poor	Poor	Good	Good	Fair	Fair	Good.
Urban Land	---	---	---	---	---	---	---	---	---	---
DAM:										
Dam	---	---	---	---	---	---	---	---	---	---
DeC:										
Darien	Fair	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Fair	Very poor.
Platea	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Fair	Fair	Very poor.
DeC2:										
Darien	Fair	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Fair	Very poor.
Platea	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Fair	Fair	Very poor.
DhB:										
Darien	Fair	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
Hornell	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.

Table 18.—Wildlife Habitat—Continued

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
EnB:										
Elnora	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
FcA:										
Fitchville	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
FcB:										
Fitchville	Fair	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
GaF:										
Gageville	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
GfA:										
Glenford	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Good	Good	Poor.
GfB:										
Glenford	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Good	Good	Very poor.
GfC:										
Glenford	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Good	Good	Very poor.
GfD:										
Glenford	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Good	Very poor.
HaA:										
Harbor	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
HaC:										
HARBOR	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
HbB:										
Harbor	Fair	Fair	Fair	Fair	Fair	Poor	Very poor.	Fair	Fair	Very poor.
Urban Land	---	---	---	---	---	---	---	---	---	---
HmA:										
Holly	Poor	Poor	Poor	Fair	Fair	Good	Good	Fair	Fair	Good.
HoA:										
Hornell	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
HoB:										
Hornell	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
KfA:										
Kingsville	Poor	Poor	Poor	Poor	Poor	Good	Good	Fair	Fair	Good.
La:										
Landfills	---	---	---	---	---	---	---	---	---	---
MhA:										
Mill	Poor	Poor	Poor	Poor	Poor	Good	Good	Fair	Fair	Good.

Table 18.—Wildlife Habitat—Continued

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
MtA:										
Mitiwanga	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
MtB:										
Mitiwanga	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
OrA:										
Orrville	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
OtA:										
Otego	Fair	Fair	Fair	Fair	Fair	Poor	Poor	Fair	Good	Poor.
OuC:										
Otisville	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
PaA:										
Painesville	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
PbA:										
Painesville	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
Urban Land	---	---	---	---	---	---	---	---	---	---
PeC2:										
Pierpont	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
PeD:										
Pierpont	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Good	Very poor.
Pg:										
Pits, Gravel	---	---	---	---	---	---	---	---	---	---
Pk:										
Pits, Quarries	---	---	---	---	---	---	---	---	---	---
PrA:										
Platea	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
Darien	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
PrB:										
Platea	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
Darien	Fair	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
PrB2:										
Platea	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
Darien	Fair	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.

Table 18.—Wildlife Habitat—Continued

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
PtB:										
Platea	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
Urban Land	---	---	---	---	---	---	---	---	---	---
PtC:										
Platea	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Fair	Fair	Very poor.
Urban Land	---	---	---	---	---	---	---	---	---	---
RhA:										
Red Hook	Fair	Fair	Fair	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
RhB:										
Red Hook	Fair	Fair	Fair	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
Rw:										
Riverwash	---	---	---	---	---	---	---	---	---	---
SbA:										
Sebring	Poor	Poor	Poor	Poor	Poor	Good	Good	Fair	Fair	Good.
StA:										
Stanhope	Fair	Good	Good	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
ToC:										
Towerville	Fair	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Good	Good	Very poor.
ToD:										
Towerville	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Good	Very poor.
TyB:										
Tyner	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
Otisville	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Ud:										
Udorthents	---	---	---	---	---	---	---	---	---	---
Un:										
Urban Land	---	---	---	---	---	---	---	---	---	---
UrB:										
Urban Land	---	---	---	---	---	---	---	---	---	---
Elnora	Poor	Fair	Fair	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
UtB:										
Urban Land	---	---	---	---	---	---	---	---	---	---
Tyner	Fair	Fair	Fair	Good	Good	Very poor.	Very poor.	Fair	Fair	Very poor.
Otisville	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.

Table 18.—Wildlife Habitat—Continued

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
VeA:										
Venango	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Fair	Fair	Fair.
VeB:										
Venango	Poor	Poor	Poor	Poor	Poor	Poor	Very poor.	Fair	Fair	Very poor.
W:										
Water	---	---	---	---	---	---	---	---	---	---
WcA:										
Wick	Poor	Poor	Poor	Poor	Poor	Fair	Good	Poor	Poor	Good.
WeA:										
Willette	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.

Table 19.—Construction Materials Part 1

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.0. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
Be:				
Beaches	Not rated		Not rated	
BkA:				
Blakeslee	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
BkB:				
Blakeslee	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
BkC:				
Blakeslee	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CaB:				
Cambridge	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CaC:				
Cambridge	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CaD:				
Cambridge	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CcA:				
Canadice	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CdA:				
Caneadea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CdB:				
Caneadea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CeA:				
Caneadea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00

Table 19.—Construction Materials Part 1—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
CeA:				
Canadice	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CfC2:				
Cardinal	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CfD2:				
Cardinal	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CfF:				
Cardinal	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CgA:				
Carlisle	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CkA:				
Chenango	Good		Fair	
	Bottom layer	1.00	Thickest layer	0.72
	Thickest layer	1.00	Bottom layer	0.90
CkB:				
Chenango	Good		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	1.00	Bottom layer	0.90
CkC:				
Chenango	Good		Fair	
	Bottom layer	1.00	Thickest layer	0.72
	Thickest layer	1.00	Bottom layer	0.90
CkD:				
Chenango	Good		Fair	
	Bottom layer	1.00	Thickest layer	0.72
	Thickest layer	1.00	Bottom layer	0.90
CoB:				
Colonie	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CoD:				
Colonie	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CpB:				
Colonie	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Urban Land	Not rated		Not rated	

Table 19.—Construction Materials Part 1—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
CtA:				
Conneaut	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
CuA:				
Conneaut	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Urban Land	Not rated		Not rated	
DAM:				
Dam	Not rated		Not rated	
DeC:				
Darien	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Platea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
DeC2:				
Darien	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Platea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
DhB:				
Darien	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Hornell	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
EnB:				
Elnora	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
FcA:				
Fitchville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
FcB:				
Fitchville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
GaF:				
Gageville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00

Table 19.—Construction Materials Part 1—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
GfA:				
Glenford	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
GfB:				
Glenford	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
GfC:				
Glenford	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
GfD:				
Glenford	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
HaA:				
Harbor	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
HaC:				
Harbor	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
HbB:				
Harbor	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Urban Land	Not rated		Not rated	
HmA:				
Holly	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
HoA:				
Hornell	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
HoB:				
Hornell	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
KfA:				
Kingsville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
La:				
Landfills	Not rated		Not rated	

Table 19.—Construction Materials Part 1—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
MhA:				
Mill	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
MtA:				
Mitiwanga	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
MtB:				
Mitiwanga	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
OrA:				
Orrville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
OtA:				
Otego	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
OuC:				
Otisville	Good		Fair	
	Bottom layer	1.00	Thickest layer	0.78
	Thickest layer	1.00	Bottom layer	0.96
PaA:				
Painesville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
PbA:				
Painesville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Urban Land	Not rated		Not rated	
PeC2:				
Pierpont	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
PeD:				
Pierpont	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Pg:				
Pits, Gravel	Not rated		Not rated	
Pk:				
Pits, Quarries	Not rated		Not rated	

Table 19.—Construction Materials Part 1—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
PrA:				
Platea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Darien	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
PrB:				
Platea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Darien	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
PrB2:				
Platea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Darien	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
PtB:				
Platea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Urban Land	Not rated		Not rated	
PtC:				
Platea	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Urban Land	Not rated		Not rated	
RhA:				
Red Hook	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
RhB:				
Red Hook	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Rw:				
Riverwash	Not rated		Not rated	
SbA:				
Sebring	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00

Table 19.—Construction Materials Part 1—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
StA:				
Stanhope	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
ToC:				
Towerville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
ToD:				
Towerville	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
TyB:				
Tyner	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Otisville	Good		Fair	
	Bottom layer	1.00	Thickest layer	0.78
	Thickest layer	1.00	Bottom layer	0.96
Ud:				
Udorthents	Not rated		Not rated	
Un:				
Urban Land	Not rated		Not rated	
UrB:				
Urban Land	Not rated		Not rated	
Elnora	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
UtB:				
Urban Land	Not rated		Not rated	
Tyner	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
Otisville	Good		Fair	
	Bottom layer	1.00	Thickest layer	0.78
	Thickest layer	1.00	Bottom layer	0.96
VeA:				
Venango	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
VeB:				
Venango	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00

Table 19.—Construction Materials Part 1—Continued

Map symbol and soil name	Potential source of gravel		Potential source of sand	
	Rating class	Value	Rating class	Value
W:				
Water	Not rated		Not rated	
WcA:				
Wick	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00
WeA:				
Willette	Poor		Poor	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.00

Table 20.—Construction Materials Part 2

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Fair		Fair		Poor	
	Low content of organic matter	0.24	Depth to saturated zone	0.29	Hard to reclaim (rock fragments)	0.00
	Too acid	0.92			Rock fragments	0.28
					Depth to saturated zone	0.29
BkB:						
Blakeslee	Fair		Fair		Poor	
	Low content of organic matter	0.24	Depth to saturated zone	0.24	Hard to reclaim (rock fragments)	0.00
	Too acid	0.50			Depth to saturated zone	0.24
					Rock fragments	0.28
					Too acid	0.68
BkC:						
Blakeslee	Fair		Fair		Poor	
	Low content of organic matter	0.24	Depth to saturated zone	0.29	Hard to reclaim (rock fragments)	0.00
	Too acid	0.92			Rock fragments	0.28
					Depth to saturated zone	0.29
					Too acid	0.92
CaB:						
Cambridge	Fair		Fair		Fair	
	Droughty	0.44	Depth to saturated zone	0.38	Depth to saturated zone	0.38
	Water erosion	0.90			Rock fragments	0.50
	Too acid	0.92			Too acid	0.88
CaC:						
Cambridge	Fair		Fair		Fair	
	Droughty	0.18	Depth to saturated zone	0.09	Depth to saturated zone	0.09
	Water erosion	0.90			Rock fragments	0.50
					Slope	0.84
					Too acid	0.88
CaD:						
Cambridge	Fair		Fair		Poor	
	Droughty	0.60	Depth to saturated zone	0.14	Slope	0.00
	Water erosion	0.90			Depth to saturated zone	0.14
					Rock fragments	0.50
					Too acid	0.95

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CcA:						
Canadice	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.68	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.68	Shrink-swell	0.87	Too acid	0.95
CdA:						
Caneadea	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.00
	Water erosion	0.90	Shrink-swell	0.15	Too acid	0.99
	Too acid	0.92				
CdB:						
Caneadea	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.00
	Water erosion	0.90	Shrink-swell	0.12	Too acid	0.98
CeA:						
Caneadea	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Low strength	0.00	Too clayey	0.00
	Water erosion	0.90	Shrink-swell	0.12		
Canadice	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.08	Low strength	0.00	Too clayey	0.00
	Water erosion	0.68	Shrink-swell	0.87		
CfC2:						
Cardinal	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.24	Low strength	0.00	Too clayey	0.00
	Water erosion	0.90	Shrink-swell	0.22		
CfD2:						
Cardinal	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.24	Depth to saturated zone	0.09	Slope	0.04
	Water erosion	0.90	Shrink-swell	0.23	Depth to saturated zone	0.09

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CfF:						
Cardinal	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Slope	0.00
	Low content of organic matter	0.08	Slope	0.00	Too clayey	0.00
	Too acid	0.68	Shrink-swell	0.33	Depth to saturated zone	0.38
	Water erosion	0.90	Depth to saturated zone	0.38		
CgA:						
Carlisle	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Hard to reclaim (rock fragments)	0.00
					Rock fragments	0.00
					High organic matter content	0.00
CkA:						
Chenango	Fair		Good		Poor	
	Low content of organic matter	0.18			Hard to reclaim (rock fragments)	0.00
	Droughty	0.73			Rock fragments	0.00
CkB:						
Chenango	Fair		Good		Poor	
	Low content of organic matter	0.68			Hard to reclaim (rock fragments)	0.00
					Rock fragments	0.00
CkC:						
Chenango	Fair		Good		Poor	
	Low content of organic matter	0.18			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80			Rock fragments	0.00
					Slope	0.84
					Too acid	0.98
CkD:						
Chenango	Fair		Fair		Poor	
	Low content of organic matter	0.18	Slope	0.82	Hard to reclaim (rock fragments)	0.00
	Droughty	0.55			Rock fragments	0.00
	Too acid	0.68			Slope	0.00
					Too acid	0.76
CoB:						
Colonie	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.95
	Low content of organic matter	0.18				
	Droughty	0.98				
CoD:						
Colonie	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.04
	Low content of organic matter	0.18			Too acid	0.95
	Droughty	0.97				

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpB:						
Colonie	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.95
	Low content of organic matter	0.18				
	Droughty	0.98				
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Fair		Poor		Poor	
	Low content of organic matter	0.24	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.92	Depth to saturated zone	0.00	Too acid	0.95
	Water erosion	0.99				
CuA:						
Conneaut	Fair		Poor		Poor	
	Low content of organic matter	0.24	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.92	Low strength	0.00	Too acid	0.95
	Water erosion	0.99				
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	Fair		Poor		Poor	
	Low content of organic matter	0.08	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.95			Rock fragments	0.12
	Water erosion	0.99			Hard to reclaim (rock fragments)	0.18
					Too clayey	0.69
					Hard to reclaim (dense layer)	0.71
Platea	Fair		Poor		Poor	
	Droughty	0.13	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.98				
DeC2:						
Darien	Fair		Poor		Poor	
	Low content of organic matter	0.08	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.95			Rock fragments	0.12
	Water erosion	0.99			Hard to reclaim (rock fragments)	0.18
					Hard to reclaim (dense layer)	0.29
					Too clayey	0.69

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeC2:						
Platea	Fair		Poor		Poor	
	Droughty	0.13	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.98				
DhB:						
Darien	Fair		Poor		Poor	
	Low content of organic matter	0.88	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.95			Rock fragments	0.12
	Water erosion	0.99			Hard to reclaim (rock fragments)	0.18
					Too clayey	0.69
					Hard to reclaim (dense layer)	0.94
Hornell	Poor		Poor		Poor	
	Too clayey	0.00	Depth to bedrock	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Depth to saturated zone	0.00	Too clayey	0.00
	Droughty	0.69	Low strength	0.00	Rock fragments	0.08
	Depth to bedrock	0.79	Shrink-swell	0.90	Depth to bedrock	0.79
	Water erosion	0.90			Too acid	0.99
EnB:						
Elnora	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.29	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.29
	Low content of organic matter	0.08			Too acid	0.99
	Droughty	0.72				
FcA:						
Fitchville	Fair		Poor		Poor	
	Low content of organic matter	0.88	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.99	Low strength	0.00	Too acid	0.95
			Shrink-swell	0.93		
FcB:						
Fitchville	Fair		Poor		Poor	
	Low content of organic matter	0.88	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.99	Low strength	0.00	Too acid	0.99
			Shrink-swell	0.91		
GaF:						
Gageville	Fair		Poor		Poor	
	Low content of organic matter	0.24	Slope	0.00	Slope	0.00
	Too acid	0.82	Depth to saturated zone	0.38	Depth to saturated zone	0.38
	Water erosion	0.99	Low strength	0.78	Rock fragments	0.88
			Shrink-swell	0.90	Too acid	0.95

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GfA:						
Glenford	Fair		Fair		Fair	
	Low content of organic matter	0.75	Depth to saturated zone	0.09	Depth to saturated zone	0.09
	Water erosion	0.90			Too acid	0.99
GfB:						
Glenford	Fair		Fair		Fair	
	Low content of organic matter	0.08	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Water erosion	0.90			Too acid	0.95
	Too acid	0.98				
GfC:						
Glenford	Fair		Fair		Fair	
	Low content of organic matter	0.08	Depth to saturated zone	0.06	Depth to saturated zone	0.06
	Water erosion	0.90			Too acid	0.92
					Slope	0.96
GfD:						
Glenford	Fair		Fair		Poor	
	Low content of organic matter	0.08	Depth to saturated zone	0.24	Slope	0.00
	Water erosion	0.90	Slope	0.92	Depth to saturated zone	0.24
					Too acid	0.98
HaA:						
Harbor	Fair		Fair		Fair	
	Water erosion	0.90	Depth to saturated zone	0.18	Depth to saturated zone	0.18
	Not too sandy	0.99			Rock fragments	0.97
					Hard to reclaim (dense layer)	0.97
					Hard to reclaim (rock fragments)	0.98
HaC:						
Harbor	Fair		Fair		Fair	
	Low content of organic matter	0.08	Depth to saturated zone	0.38	Depth to saturated zone	0.38
	Water erosion	0.90			Slope	0.84
	Not too sandy	0.99			Hard to reclaim (dense layer)	0.84
					Rock fragments	0.97
					Hard to reclaim (rock fragments)	0.98
HbB:						
Harbor	Fair		Fair		Fair	
	Water erosion	0.90	Depth to saturated zone	0.18	Depth to saturated zone	0.18
	Not too sandy	0.99			Rock fragments	0.97
					Hard to reclaim (dense layer)	0.97
					Hard to reclaim (rock fragments)	0.98
Urban Land	Not rated		Not rated		Not rated	

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HmA:						
Holly	Fair		Poor		Poor	
	Low content of organic matter	0.75	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Rock fragments	0.97
HoA:						
Hornell	Poor		Poor		Poor	
	Too clayey	0.00	Depth to bedrock	0.00	Depth to saturated zone	0.00
	Droughty	0.19	Depth to saturated zone	0.00	Too clayey	0.00
	Depth to bedrock	0.35	Low strength	0.00	Rock fragments	0.08
	Low content of organic matter	0.68	Shrink-swell	0.87	Depth to bedrock	0.35
	Water erosion	0.90			Too acid	0.88
HoB:						
Hornell	Poor		Poor		Poor	
	Too clayey	0.00	Depth to bedrock	0.00	Depth to saturated zone	0.00
	Droughty	0.46	Depth to saturated zone	0.00	Too clayey	0.00
	Depth to bedrock	0.65	Low strength	0.00	Rock fragments	0.08
	Low content of organic matter	0.68	Shrink-swell	0.87	Depth to bedrock	0.65
	Water erosion	0.90			Too acid	0.76
KfA:						
Kingsville	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too sandy	0.00			Too sandy	0.00
	Low content of organic matter	0.18				
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Fair		Poor		Poor	
	Low content of organic matter	0.24	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Water erosion	0.90			Depth to saturated zone	0.00
					Rock fragments	0.28
					Hard to reclaim (rock fragments)	0.98
MtA:						
Mitiwanga	Fair		Poor		Poor	
	Depth to bedrock	0.54	Depth to bedrock	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Depth to saturated zone	0.00	Rock fragments	0.12
	Droughty	0.78	Shrink-swell	0.90	Depth to bedrock	0.54
					Too acid	0.95

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MtB:						
Mitiwanga	Fair		Poor		Poor	
	Depth to bedrock	0.65	Depth to bedrock	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.68	Depth to saturated zone	0.00	Rock fragments	0.12
	Droughty	0.88	Shrink-swell	0.94	Depth to bedrock	0.65
					Too acid	0.92
OrA:						
Orrville	Fair		Poor		Poor	
	Low content of organic matter	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.99			Rock fragments	0.97
					Too acid	0.98
OtA:						
Otego	Fair		Fair		Fair	
	Water erosion	0.06	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Low content of organic matter	0.18			Too acid	0.76
	Too acid	0.92				
OuC:						
Otisville	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Droughty	0.00			Rock fragments	0.00
	Low content of organic matter	0.08			Hard to reclaim (rock fragments)	0.00
					Slope	0.84
					Too acid	0.95
PaA:						
Painesville	Fair		Poor		Poor	
	Low content of organic matter	0.24	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.90			Rock fragments	0.88
					Too acid	0.95
PbA:						
Painesville	Fair		Poor		Poor	
	Low content of organic matter	0.24	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.90			Rock fragments	0.88
					Too acid	0.95
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Fair		Poor		Poor	
	Droughty	0.18	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.75	Low strength	0.00	Hard to reclaim (dense layer)	0.10
	Water erosion	0.90			Too acid	0.76
	Too acid	0.92				

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeD:						
Pierpont	Fair		Poor		Poor	
	Droughty	0.28	Low strength	0.00	Slope	0.00
	Low content of organic matter	0.75	Depth to saturated zone	0.02	Depth to saturated zone	0.02
	Water erosion	0.90			Hard to reclaim (dense layer)	0.16
					Too acid	0.92
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Fair		Poor		Poor	
	Droughty	0.38	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.88	Low strength	0.00	Hard to reclaim (dense layer)	0.01
	Water erosion	0.90			Too acid	0.76
	Too acid	0.92				
Darien	Fair		Poor		Poor	
	Low content of organic matter	0.88	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.99	Shrink-swell	0.98	Rock fragments	0.12
					Hard to reclaim (rock fragments)	0.50
PrB:						
Platea	Fair		Poor		Poor	
	Droughty	0.02	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.92			Too acid	0.76
Darien	Fair		Poor		Poor	
	Low content of organic matter	0.08	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.99			Rock fragments	0.12
					Hard to reclaim (rock fragments)	0.18
					Hard to reclaim (dense layer)	0.80
PrB2:						
Platea	Fair		Poor		Poor	
	Droughty	0.02	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.92			Too acid	0.76

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PrB2:						
Darien	Fair		Poor		Poor	
	Low content of organic matter	0.08	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.99			Rock fragments	0.12
					Hard to reclaim (rock fragments)	0.18
					Hard to reclaim (dense layer)	0.46
PtB:						
Platea	Fair		Poor		Poor	
	Droughty	0.02	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.92			Too acid	0.76
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Fair		Poor		Poor	
	Droughty	0.13	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.00
	Too acid	0.98				
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Fair		Poor		Poor	
	Low content of organic matter	0.08	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Rock fragments	0.00
					Hard to reclaim (rock fragments)	0.00
					Too acid	0.99
RhB:						
Red Hook	Poor		Poor		Poor	
	Low content of organic matter	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Rock fragments	0.00
					Hard to reclaim (rock fragments)	0.00
					Too acid	0.99
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Fair		Poor		Poor	
	Low content of organic matter	0.75	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.99	Low strength	0.22	Too acid	0.92
			Shrink-swell	0.87		

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
StA:						
Stanhope	Fair		Poor		Poor	
	Water erosion	0.90	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.92	Low strength	0.78	Too acid	0.98
			Shrink-swell	0.87		
ToC:						
Towerville	Fair		Poor		Poor	
	Low content of organic matter	0.08	Depth to bedrock	0.00	Depth to saturated zone	0.00
	Droughty	0.78	Depth to saturated zone	0.00	Rock fragments	0.00
	Too acid	0.82			Too acid	0.76
	Depth to bedrock	0.84			Slope	0.84
	Water erosion	0.99			Depth to bedrock	0.84
ToD:						
Towerville	Poor		Poor		Poor	
	Low content of organic matter	0.00	Depth to bedrock	0.00	Slope	0.00
	Droughty	0.69	Depth to saturated zone	0.09	Depth to saturated zone	0.09
	Depth to bedrock	0.71	Low strength	0.22	Rock fragments	0.64
	Too acid	0.82			Too acid	0.68
	Water erosion	0.99			Depth to bedrock	0.71
TyB:						
Tyner	Poor		Good		Fair	
	Wind erosion	0.00			Too sandy	0.42
	Low content of organic matter	0.02			Too acid	0.99
	Too sandy	0.42				
Otisville	Fair		Good		Poor	
	Droughty	0.01			Rock fragments	0.00
	Low content of organic matter	0.08			Hard to reclaim (rock fragments)	0.00
	Too sandy	0.32			Too sandy	0.32
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.29	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.29
	Low content of organic matter	0.08			Too acid	0.99
	Droughty	0.72				

Table 20.—Construction Materials Part 2—Continued

Map symbol and soil name	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Poor		Good		Fair	
	Wind erosion	0.00			Too sandy	0.42
	Low content of organic matter	0.02			Too acid	0.99
	Too sandy	0.42				
Otisville	Fair		Good		Poor	
	Droughty	0.01			Rock fragments	0.00
	Low content of organic matter	0.08			Hard to reclaim (rock fragments)	0.00
	Too sandy	0.32			Too sandy	0.32
VeA:						
Venango	Fair		Poor		Poor	
	Droughty	0.17	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.32			Hard to reclaim (dense layer)	0.01
	Too acid	0.50			Rock fragments	0.50
	Water erosion	0.99			Too acid	0.88
VeB:						
Venango	Fair		Poor		Poor	
	Droughty	0.27	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.32			Hard to reclaim (dense layer)	0.03
	Water erosion	0.99			Rock fragments	0.50
					Too acid	0.92
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	Fair		Poor		Poor	
	Water erosion	0.90	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00		
WeA:						
Willette	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.00	Low strength	0.00	Rock fragments	0.00
			Shrink-swell	0.61	High organic matter content	0.00
					Too acid	0.95

Table 21.—Building Site Development Part 1

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.87	Depth to saturated zone	1.00	Depth to saturated zone	0.87
BkB:						
Blakeslee	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.93	Depth to saturated zone	1.00	Depth to saturated zone	0.93
					Slope	0.10
BkC:						
Blakeslee	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.87	Depth to saturated zone	1.00	Slope	0.90
					Depth to saturated zone	0.87
CaB:						
Cambridge	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00	Depth to saturated zone	0.75
CaC:						
Cambridge	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	0.16	Slope	0.16	Slope	1.00
CaD:						
Cambridge	Very limited		Very limited		Very limited	
	Slippage	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.99	Slippage	1.00	Slippage	1.00
	Depth to saturated zone	0.99	Slope	0.99	Depth to saturated zone	0.99
CcA:						
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CdA:						
Caneadea	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	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 21.—Building Site Development Part 1—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
CdB:						
Caneadea	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	1.00	Shrink-swell	1.00	Shrink-swell	1.00
CeA:						
Caneadea	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	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
CfC2:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slippage	1.00	Shrink-swell	1.00	Slippage	1.00
	Shrink-swell	1.00	Slippage	1.00	Shrink-swell	1.00
	Slope	0.01	Slope	0.01	Slope	0.99
CfD2:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Slippage	1.00	Slippage	1.00
	Slope	0.96	Slope	0.96	Shrink-swell	1.00
CfF:						
Cardinal	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Slippage	1.00	Depth to saturated zone	1.00	Slippage	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.75	Slippage	1.00	Depth to saturated zone	0.75
CgA:						
Carlisle	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
CkA:						
Chenango	Not limited		Not limited		Not limited	
CkB:						
Chenango	Not limited		Not limited		Not limited	
CkC:						
Chenango	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.16	Slope	0.16	Slope	1.00

Table 21.—Building Site Development Part 1—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
CkD:						
Chenango	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Slippage	1.00
CoB:						
Colonie	Not limited		Not limited		Somewhat limited	
					Slope	0.10
CoD:						
Colonie	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	1.00
	Slope	0.96	Slope	0.96	Slippage	1.00
CpB:						
Colonie	Not limited		Not limited		Somewhat limited	
					Slope	0.10
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	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
CuA:						
Conneaut	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
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	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	Slope	0.04	Slope	1.00
	Slope	0.04			Shrink-swell	0.50
Platea	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	0.01	Slope	0.01	Slope	0.99
DeC2:						
Darien	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	Slope	0.01	Slope	0.99
	Slope	0.01			Shrink-swell	0.50
Platea	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	0.01	Slope	0.01	Slope	0.99

Table 21.—Building Site Development Part 1—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
DhB:						
Darien	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
Hornell	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	Slope	0.68
	Depth to hard bedrock	0.20	Shrink-swell	0.50	Shrink-swell	0.50
					Depth to hard bedrock	0.20
EnB:						
Elnora	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.87	Depth to saturated zone	1.00	Depth to saturated zone	0.87
FcA:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
FcB:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
					Slope	0.10
GaF:						
Gageville	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Slippage	1.00	Depth to saturated zone	1.00	Slippage	1.00
	Depth to saturated zone	0.75	Slippage	1.00	Depth to saturated zone	0.75
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
GfA:						
Glenford	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
GfB:						
Glenford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
					Slope	0.10
GfC:						
Glenford	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	Slope	0.04	Slope	1.00
	Slope	0.04			Shrink-swell	0.50

Table 21.—Building Site Development Part 1—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
GfD:						
Glenford	Very limited		Very limited		Very limited	
	Slippage	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Slippage	1.00	Slippage	1.00
	Depth to saturated zone	0.93	Slope	1.00	Depth to saturated zone	0.93
	Shrink-swell	0.50			Shrink-swell	0.50
HaA:						
Harbor	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
			Shrink-swell	0.50		
HaC:						
Harbor	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.16	Shrink-swell	0.50	Depth to saturated zone	0.75
			Slope	0.16		
HbB:						
Harbor	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
			Shrink-swell	0.50		
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	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
HoA:						
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Depth to soft bedrock	0.64	Shrink-swell	0.50
			Shrink-swell	0.50		
HoB:						
Hornell	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
			Depth to soft bedrock	0.35	Slope	0.10
KfA:						
Kingsville	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
La:						
Landfills	Not rated		Not rated		Not rated	

Table 21.—Building Site Development Part 1—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
MhA:						
Mill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
MtA:						
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	0.46	Shrink-swell	0.50	Depth to hard bedrock	0.46
MtB:						
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	0.35	Shrink-swell	0.50	Depth to hard bedrock	0.35
OrA:						
Orrville	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
OtA:						
Otego	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.99	Depth to saturated zone	1.00	Depth to saturated zone	0.99
OuC:						
Otisville	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.16	Slope	0.16	Slope	1.00
PaA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
PbA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slippage	1.00	Slippage	1.00	Slippage	1.00
	Slope	0.01	Slope	0.01	Slope	0.99

Table 21.—Building Site Development Part 1—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
PeD:						
Pierpont	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Slope	0.99	Slope	0.99	Slippage	1.00
Pg:						
Pits, Gravel	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.84	Slope	0.84	Slope	1.00
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Darien	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
PrB:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Darien	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			Slope	0.68
					Shrink-swell	0.50
PrB2:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
					Slope	0.10
PtB:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	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	0.01	Slope	0.01	Slope	0.99
Urban Land	Not rated		Not rated		Not rated	

Table 21.—Building Site Development Part 1—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
RhA:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RhB:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
StA:						
Stanhope	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
ToC:						
Towerville	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	0.16	Slope	0.16	Slope	1.00
			Depth to soft bedrock	0.15		
ToD:						
Towerville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Slope	0.99	Slope	0.99	Slippage	1.00
			Depth to soft bedrock	0.29		
TyB:						
Tyner	Not limited		Not limited		Not limited	
Otisville	Not limited		Not limited		Somewhat limited	
					Slope	0.68
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.87	Depth to saturated zone	1.00	Depth to saturated zone	0.87

Table 21.—Building Site Development Part 1—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
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Not limited		Not limited		Not limited	
Otisville	Not limited		Not limited		Somewhat limited	
					Slope	0.68
VeA:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
VeB:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	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
WeA:						
Willette	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 22.—Building Site Development Part 2

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Depth to saturated zone	0.48				
	Low strength	0.05				
BkB:						
Blakeslee	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.56	Depth to saturated zone	1.00	Depth to saturated zone	0.56
	Frost action	0.50				
	Low strength	0.05				
BkC:						
Blakeslee	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.48
	Depth to saturated zone	0.48				
	Low strength	0.05				
CaB:						
Cambridge	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.35
	Depth to saturated zone	0.35				
CaC:						
Cambridge	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.83	Depth to saturated zone	1.00	Depth to saturated zone	0.83
	Frost action	0.50	Slope	0.16	Slope	0.16
	Slope	0.16			Droughty	0.01
CaD:						
Cambridge	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	0.99
	Slope	0.99	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Slope	0.99		
	Frost action	0.50				
CcA:						
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Ponding	1.00	Ponding	1.00
	Frost action	1.00	Too clayey	0.50		
	Ponding	1.00				
	Shrink-swell	0.50				

Table 22.—Building Site Development Part 2—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
CdA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Too clayey	0.50		
	Frost action	1.00				
	Shrink-swell	1.00				
CdB:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Too clayey	0.50		
	Frost action	1.00				
	Shrink-swell	1.00				
CeA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Too clayey	0.50		
	Frost action	1.00				
	Shrink-swell	1.00				
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Low strength	1.00	Ponding	1.00	Ponding	1.00
	Frost action	1.00	Too clayey	0.50		
	Ponding	1.00				
	Shrink-swell	0.50				
CfC2:						
Cardinal	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.01
	Low strength	1.00	Too clayey	0.50		
	Frost action	1.00	Slope	0.01		
	Shrink-swell	1.00				
CfD2:						
Cardinal	Very limited		Very limited		Somewhat limited	
	Slippage	1.00	Slippage	1.00	Slope	0.96
	Low strength	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.83
	Frost action	1.00	Slope	0.96		
	Shrink-swell	1.00	Too clayey	0.50		
	Slope	0.96				
CfF:						
Cardinal	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	0.35
	Low strength	1.00	Depth to saturated zone	1.00		
	Frost action	1.00	Too clayey	0.50		
	Shrink-swell	1.00				

Table 22.—Building Site Development Part 2—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
CgA:						
Carlisle	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Content of organic matter	1.00	Gravel content	1.00
	Frost action	1.00			Depth to saturated zone	1.00
CkA:						
Chenango	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.08
					Droughty	0.08
CkB:						
Chenango	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Gravel content	0.08
CkC:						
Chenango	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.16
	Slope	0.16	Slope	0.16	Gravel content	0.08
					Droughty	0.03
CkD:						
Chenango	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	1.00
	Slope	1.00	Cutbanks cave	1.00	Droughty	0.25
	Frost action	0.50	Slope	1.00	Gravel content	0.08
CoB:						
Colonie	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.42
CoD:						
Colonie	Very limited		Very limited		Somewhat limited	
	Slippage	1.00	Slippage	1.00	Slope	0.96
	Slope	0.96	Cutbanks cave	1.00	Droughty	0.45
			Slope	0.96		
CpB:						
Colonie	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.42
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Low strength	1.00				
	Shrink-swell	0.50				
CuA:						
Conneaut	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Low strength	1.00				
	Shrink-swell	0.50				
Urban Land	Not rated		Not rated		Not rated	

Table 22.—Building Site Development Part 2—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
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Slope	0.04	Slope	0.04
	Shrink-swell	0.50				
	Slope	0.04				
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Slope	0.01	Droughty	0.04
	Low strength	0.90			Slope	0.01
	Slope	0.01				
DeC2:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Slope	0.01	Slope	0.01
	Shrink-swell	0.50				
	Slope	0.01				
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Slope	0.01	Droughty	0.04
	Low strength	0.90			Slope	0.01
	Slope	0.01				
DhB:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Shrink-swell	0.50				
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.20
	Low strength	1.00	Too clayey	0.50		
	Shrink-swell	0.50				
	Depth to hard bedrock	0.20				
EnB:						
Elnora	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.48	Cutbanks cave	1.00	Droughty	0.70
			Depth to saturated zone	1.00	Depth to saturated zone	0.48
FcA:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Low strength	1.00				
	Shrink-swell	0.50				

Table 22.—Building Site Development Part 2—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
FcB:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Low strength	1.00				
	Shrink-swell	0.50				
GaF:						
Gageville	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	0.35
	Shrink-swell	0.50	Depth to saturated zone	1.00		
	Frost action	0.50				
	Depth to saturated zone	0.35				
GfA:						
Glenford	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	0.83
	Depth to saturated zone	0.83	Depth to saturated zone	1.00		
	Shrink-swell	0.50				
GfB:						
Glenford	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	0.94
	Depth to saturated zone	0.94	Depth to saturated zone	1.00		
	Shrink-swell	0.50				
GfC:						
Glenford	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.90
	Depth to saturated zone	0.90	Slope	0.04	Slope	0.04
	Shrink-swell	0.50				
	Slope	0.04				
GfD:						
Glenford	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.56
	Slope	1.00	Slope	1.00		
	Depth to saturated zone	0.56				
	Shrink-swell	0.50				
HaA:						
Harbor	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.68	Depth to saturated zone	1.00	Depth to saturated zone	0.68
	Frost action	0.50				

Table 22.—Building Site Development Part 2—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
HaC:						
Harbor	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to saturated zone	1.00	Depth to saturated zone	0.35
	Depth to saturated zone	0.35	Slope	0.16	Slope	0.16
	Slope	0.16				
HbB:						
Harbor	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.68	Depth to saturated zone	1.00	Depth to saturated zone	0.68
	Frost action	0.50				
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.80		
HoA:						
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Depth to soft bedrock	0.64	Depth to bedrock	0.65
	Low strength	1.00	Too clayey	0.50	Droughty	0.01
	Shrink-swell	0.50				
HoB:						
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Too clayey	0.50	Depth to bedrock	0.35
	Low strength	1.00	Depth to soft bedrock	0.35		
	Shrink-swell	0.50				
KfA:						
Kingsville	Very limited		Very limited		Very limited	
	Ponding	1.00	Cutbanks cave	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Depth to saturated zone	1.00	Droughty	0.02
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00				
	Shrink-swell	0.50				
	Low strength	0.28				

Table 22.—Building Site Development Part 2—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
MtA:						
Mitiwanga	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.46
	Shrink-swell	0.50				
	Depth to hard bedrock	0.46				
MtB:						
Mitiwanga	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.35
	Shrink-swell	0.50				
	Depth to hard bedrock	0.35				
OrA:						
Orrville	Very limited		Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.80		
OtA:						
Otego	Very limited		Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	0.75
	Depth to saturated zone	0.75				
OuC:						
Otisville	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.16	Cutbanks cave	1.00	Droughty	0.96
			Slope	0.16	Gravel content	0.18
					Slope	0.16
PaA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
PbA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
Urban Land	Not rated		Not rated		Not rated	

Table 22.—Building Site Development Part 2—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
PeC2:						
Pierpont	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Droughty	0.01
	Frost action	1.00	Slope	0.01	Slope	0.01
	Low strength	0.90				
	Slope	0.01				
PeD:						
Pierpont	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	0.99
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Slope	0.99	Slope	0.99		
	Depth to saturated zone	0.96				
	Low strength	0.90				
Pg:						
Pits, Gravel	Somewhat limited		Not rated		Not rated	
	Slope	0.84				
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Low strength	0.90				
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Shrink-swell	0.50				
PrB:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00			Droughty	0.27
	Low strength	0.90				
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Shrink-swell	0.50				
PrB2:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00			Droughty	0.27
	Low strength	0.90				

Table 22.—Building Site Development Part 2—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
PrB2:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
	Shrink-swell	0.50				
PtB:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00			Droughty	0.27
	Low strength	0.90				
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Slope	0.01	Droughty	0.04
	Low strength	0.90			Slope	0.01
	Slope	0.01				
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
RhB:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Low strength	1.00	Ponding	1.00		
	Ponding	1.00				
	Shrink-swell	0.50				
StA:						
Stanhope	Very limited		Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Frost action	1.00				
	Low strength	0.50				
	Shrink-swell	0.50				

Table 22.—Building Site Development Part 2—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
ToC:						
Towerville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Slope	0.16	Slope	0.16
	Slope	0.16	Depth to soft bedrock	0.15	Depth to bedrock	0.16
ToD:						
Towerville	Very limited		Very limited		Very limited	
	Slippage	1.00	Slippage	1.00	Slope	0.99
	Slope	0.99	Depth to saturated zone	1.00	Depth to saturated zone	0.83
	Depth to saturated zone	0.83	Slope	0.99	Depth to bedrock	0.29
	Low strength	0.50	Depth to soft bedrock	0.29		
	Frost action	0.50				
TyB:						
Tyner	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.01
Otisville	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.92
					Gravel content	0.18
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.48	Cutbanks cave	1.00	Droughty	0.70
			Depth to saturated zone	1.00	Depth to saturated zone	0.48
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.01
Otisville	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.92
					Gravel content	0.18
VeA:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00			Droughty	0.02
VeB:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00				

Table 22.—Building Site Development Part 2—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	Very limited		Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Frost action	1.00				
	Low strength	1.00				
WeA:						
Willette	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Content of organic matter	1.00	Gravel content	1.00
	Low strength	1.00	Too clayey	0.50	Depth to saturated zone	1.00
	Frost action	1.00				

Table 23.—Sanitary Facilities Part 1

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential 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
Be:				
Beaches	Not rated		Not rated	
BkA:				
Blakeslee	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	1.00
BkB:				
Blakeslee	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.32
BkC:				
Blakeslee	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	1.00
			Slope	1.00
CaB:				
Cambridge	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.01
CaC:				
Cambridge	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.16	Seepage	0.53
CaD:				
Cambridge	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00	Seepage	0.53
	Slope	0.99		

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
CcA:				
Canadice	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00		
CdA:				
Caneadea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
CdB:				
Caneadea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.08
CeA:				
Caneadea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
Canadice	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00		
CfC2:				
Cardinal	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00		
	Slope	0.01		
CfD2:				
Cardinal	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00		
	Slope	0.96		
CfF:				
Cardinal	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00	Seepage	0.53
	Slippage	1.00		

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
CgA:				
Carlisle	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
			Seepage	1.00
CkA:				
Chenango	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
CkB:				
Chenango	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
CkC:				
Chenango	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.16	Slope	1.00
CkD:				
Chenango	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slippage	1.00	Seepage	1.00
	Slope	1.00		
CoB:				
Colonie	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.32
CoD:				
Colonie	Very limited		Very limited	
	Slippage	1.00	Slope	1.00
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.96		
CpB:				
Colonie	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.32
Urban Land	Not rated		Not rated	
CtA:				
Conneaut	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
CuA:				
Conneaut	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
Urban Land	Not rated		Not rated	
DAM:				
Dam	Not rated		Not rated	
DeC:				
Darien	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Seepage	0.53
Platea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01		
DeC2:				
Darien	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01		
Platea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01		
DhB:				
Darien	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.08
Hornell	Very limited		Very limited	
	Restricted permeability	1.00	Depth to hard bedrock	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.68

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
EnB:				
Elnora	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
FcA:				
Fitchville	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.28
FcB:				
Fitchville	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
			Slope	0.32
GaF:				
Gageville	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	1.00		
	Slippage	1.00		
GfA:				
Glenford	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.28
GfB:				
Glenford	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Slope	0.32
			Seepage	0.28
GfC:				
Glenford	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Slope	1.00
	Slope	0.04	Seepage	0.28

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
GfD:				
Glenford	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slippage	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.28
	Slope	1.00		
HaA:				
Harbor	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Slope	0.01
HaC:				
Harbor	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	1.00
	Filtering capacity	1.00	Slope	1.00
	Slope	0.16		
HbB:				
Harbor	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Slope	0.01
Urban Land	Not rated		Not rated	
HmA:				
Holly	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	1.00
	Restricted permeability	0.72	Seepage	1.00
HoA:				
Hornell	Very limited		Very limited	
	Restricted permeability	1.00	Depth to soft bedrock	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
HoB:				
Hornell	Very limited		Very limited	
	Restricted permeability	1.00	Depth to soft bedrock	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.32
KfA:				
Kingsville	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	1.00
La:				
Landfills	Not rated		Not rated	
MhA:				
Mill	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00		
MtA:				
Mitiwanga	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
MtB:				
Mitiwanga	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.08
OrA:				
Orrville	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	1.00
	Restricted permeability	0.46	Seepage	1.00
OtA:				
Otego	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	1.00
	Restricted permeability	0.72	Seepage	0.53

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
OuC:				
Otisville	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.16	Slope	1.00
PaA:				
Painesville	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	1.00
PbA:				
Painesville	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	1.00
Urban Land	Not rated		Not rated	
PeC2:				
Pierpont	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00	Seepage	0.28
	Slope	0.01		
PeD:				
Pierpont	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slippage	1.00	Seepage	0.53
	Slope	0.99		
Pg:				
Pits, Gravel	Very limited		Not rated	
	Filtering capacity	1.00		
	Slope	0.84		
Pk:				
Pits, Quarries	Not rated		Not rated	
PrA:				
Platea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
Darien	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
PrB:				
Platea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.08
Darien	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.68
			Seepage	0.53
PrB2:				
Platea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.08
Darien	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.32
PtB:				
Platea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	0.08
Urban Land	Not rated		Not rated	
PtC:				
Platea	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01		
Urban Land	Not rated		Not rated	
RhA:				
Red Hook	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.72	Seepage	0.53
RhB:				
Red Hook	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.72	Seepage	0.53
			Slope	0.01
Rw:				
Riverwash	Not rated		Not rated	

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
SbA:				
Sebring	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00	Seepage	0.28
StA:				
Stanhope	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	1.00
	Restricted permeability	0.72	Seepage	0.28
ToC:				
Towerville	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Slope	1.00
	Slope	0.16	Seepage	0.53
ToD:				
Towerville	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slippage	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.53
	Slope	0.99		
TyB:				
Tyner	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
Otisville	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.68
Ud:				
Udorthents	Not rated		Not rated	
Un:				
Urban Land	Not rated		Not rated	
UrB:				
Urban Land	Not rated		Not rated	
Elnora	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08

Table 23.—Sanitary Facilities Part 1—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
UtB:				
Urban Land	Not rated		Not rated	
Tyner	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
Otisville	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.68
VeA:				
Venango	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.01
VeB:				
Venango	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53
			Slope	0.08
W:				
Water	Not rated		Not rated	
WcA:				
Wick	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Flooding	1.00
	Restricted permeability	0.72	Seepage	1.00
WeA:				
Willette	Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Subsidence	1.00	Content of organic matter	1.00

Table 24.—Sanitary Facilities Part 2

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential 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
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage (bottom layer)	1.00	Seepage	1.00	Gravel content	0.37
BkB:						
Blakeslee	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Seepage (bottom layer)	1.00	Seepage	1.00	Gravel content	0.63
BkC:						
Blakeslee	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.96
	Seepage (bottom layer)	1.00	Seepage	1.00	Gravel content	0.62
CaB:						
Cambridge	Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.88	Depth to saturated zone	0.93
CaC:						
Cambridge	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	0.16	Slope	0.16	Slope	0.16
CaD:						
Cambridge	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Slope	0.99
	Slope	0.99	Slope	0.99	Depth to saturated zone	0.99
			Depth to saturated zone	0.99		
CcA:						
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00	Ponding	1.00	Too clayey	1.00
	Ponding	1.00			Hard to compact	1.00
					Ponding	1.00
CdA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00

Table 24.—Sanitary Facilities Part 2—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
CdB:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
CeA:						
Caneadea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00			Too clayey	1.00
Canadice	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00	Ponding	1.00	Too clayey	1.00
	Ponding	1.00			Hard to compact	1.00
					Ponding	1.00
CfC2:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Too clayey	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Slope	0.01	Slope	0.01	Slope	0.01
CfD2:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Too clayey	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Slope	0.96	Slope	0.96	Slope	0.96
CfF:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too clayey	1.00
	Too clayey	1.00	Depth to saturated zone	0.88	Depth to saturated zone	0.93
CgA:						
Carlisle	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Content of organic matter	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Content of organic matter	1.00	Seepage	1.00	Depth to saturated zone	1.00
	Seepage (bottom layer)	1.00				
CkA:						
Chenango	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	1.00

Table 24.—Sanitary Facilities Part 2—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
CkB:						
Chenango	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Gravel content	0.99
CkC:						
Chenango	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	0.50	Slope	0.16	Gravel content	1.00
	Slope	0.16			Too sandy	0.50
					Slope	0.16
CkD:						
Chenango	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Slippage	1.00	Seepage	1.00
	Slope	1.00	Seepage	1.00	Gravel content	1.00
	Too sandy	0.50	Slope	1.00	Slope	1.00
					Too sandy	0.50
CoB:						
Colonie	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00				
CoD:						
Colonie	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Slippage	1.00	Too sandy	1.00
	Too sandy	1.00	Seepage	1.00	Slope	0.96
	Slope	0.96	Slope	0.96		
CpB:						
Colonie	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00				
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CuA:						
Conneaut	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	

Table 24.—Sanitary Facilities Part 2—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
DeC:						
Darien	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	Slope	0.04	Too clayey	0.50
	Slope	0.04			Gravel content	0.05
					Slope	0.04
Platea	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	Slope	0.01	Too clayey	0.50
	Slope	0.01			Slope	0.01
DeC2:						
Darien	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	0.01	Slope	0.01	Gravel content	0.15
					Slope	0.01
Platea	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	Slope	0.01	Too clayey	0.50
	Slope	0.01			Slope	0.01
DhB:						
Darien	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
					Gravel content	0.05
Hornell	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	1.00			Too clayey	1.00
					Hard to compact	1.00
EnB:						
Elnora	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage (bottom layer)	1.00	Seepage	1.00	Depth to saturated zone	0.96
	Too sandy	1.00				
FcA:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
FcB:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50

Table 24.—Sanitary Facilities Part 2—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
GaF:						
Gageville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	0.93
	Too clayey	0.50	Depth to saturated zone	0.88	Too clayey	0.50
GfA:						
Glenford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
GfB:						
Glenford	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 sandy	1.00			Too sandy	1.00
GfC:						
Glenford	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	0.04	Slope	0.04	Slope	0.04
GfD:						
Glenford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.98
			Slope	1.00		
HaA:						
Harbor	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	1.00	Depth to saturated zone	0.99
	Too clayey	0.50	Depth to saturated zone	0.99	Too clayey	0.50
HaC:						
Harbor	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	1.00	Depth to saturated zone	0.93
	Too clayey	0.50	Depth to saturated zone	0.88	Too clayey	0.50
	Slope	0.16	Slope	0.16	Slope	0.16
HbB:						
Harbor	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	1.00	Depth to saturated zone	0.99
	Too clayey	0.50	Depth to saturated zone	0.99	Too clayey	0.50
Urban Land	Not rated		Not rated		Not rated	

Table 24.—Sanitary Facilities Part 2—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
HmA:						
Holly	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 sandy	0.50
	Seepage (bottom layer)	1.00	Seepage	1.00		
	Too sandy	0.50				
HoA:						
Hornell	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	1.00			Too clayey	1.00
					Hard to compact	1.00
HoB:						
Hornell	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	1.00			Too clayey	1.00
					Hard to compact	1.00
KfA:						
Kingsville	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 (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00				
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
MtA:						
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	Depth to bedrock	1.00	Depth to saturated zone	1.00
MtB:						
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	Depth to bedrock	1.00	Depth to saturated zone	1.00

Table 24.—Sanitary Facilities Part 2—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
OrA:						
Orrville	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 (bottom layer)	1.00	Seepage	1.00		
OtA:						
Otego	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.99
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
OuC:						
Otisville	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.16	Seepage	1.00
	Slope	0.16			Gravel content	1.00
					Slope	0.16
PaA:						
Painesville	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		
PbA:						
Painesville	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		
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Too clayey	0.50	Depth to saturated zone	1.00	Too clayey	0.50
	Slope	0.01	Slope	0.01	Slope	0.01
PeD:						
Pierpont	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Depth to saturated zone	1.00
	Slope	0.99	Depth to saturated zone	1.00	Slope	0.99
	Too clayey	0.50	Slope	0.99	Too clayey	0.50
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	

Table 24.—Sanitary Facilities Part 2—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
PrA:						
Platea	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
Darien	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
					Gravel content	0.01
PrB:						
Platea	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
Darien	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
					Gravel content	0.18
PrB2:						
Platea	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
Darien	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
					Gravel content	0.14
PtB:						
Platea	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
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	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	Slope	0.01	Too clayey	0.50
	Slope	0.01			Slope	0.01
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Gravel content	0.70

Table 24.—Sanitary Facilities Part 2—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
RhB:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Gravel content	0.50
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too sandy	1.00			Too clayey	0.50
	Too clayey	0.50			Too sandy	0.50
StA:						
Stanhope	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		
ToC:						
Towerville	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	Slope	0.16	Too clayey	0.50
	Slope	0.16			Slope	0.16
					Gravel content	0.01
ToD:						
Towerville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slippage	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slope	0.99	Depth to bedrock	1.00	Slope	0.99
			Slope	0.99		
TyB:						
Tyner	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00				
Otisville	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	1.00
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	

Table 24.—Sanitary Facilities Part 2—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
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage (bottom layer)	1.00	Seepage	1.00	Depth to saturated zone	0.96
	Too sandy	1.00				
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00				
Otisville	Very limited		Very limited		Very limited	
	Seepage (bottom layer)	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	1.00
VeA:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
VeB:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	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		
WeA:						
Willette	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	1.00	Seepage	1.00	Too clayey	1.00
					Hard to compact	1.00
					Gravel content	0.12

Table 25.—Agricultural Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.01	Too acid	0.01	Too acid	0.01
BkB:						
Blakeslee	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.62	Too acid	1.00	Too acid	1.00
	Droughty	0.03	Droughty	0.03	Too steep for surface application	0.08
					Droughty	0.03
BkC:						
Blakeslee	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.01	Droughty	0.01	Too steep for surface application	0.92
					Too steep for sprinkler application	0.02
					Droughty	0.01
CaB:						
Cambridge	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.62	Too acid	1.00	Too acid	1.00
	Droughty	0.56	Droughty	0.56	Droughty	0.56
CaC:						
Cambridge	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Too acid	0.85	Too steep for surface application	1.00
	Droughty	0.82	Droughty	0.82	Too acid	0.85
	Too acid	0.27	Slope	0.16	Droughty	0.82
	Slope	0.16			Too steep for sprinkler application	0.40

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CaD:						
Cambridge	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	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.40	Droughty	0.40	Too steep for sprinkler application	1.00
					Droughty	0.40
CcA:						
Canadice	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Runoff	0.40	Too acid	0.01	Too acid	0.01
	Too acid	0.01				
CdA:						
Caneadea	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.62	Too acid	1.00	Too acid	1.00
	Runoff	0.40				
CdB:						
Caneadea	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.50	Too acid	1.00	Too acid	1.00
	Runoff	0.40				
CeA:						
Caneadea	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Runoff	0.40				
Canadice	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Runoff	0.40				

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CfC2:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.08	Too acid	0.31	Too steep for surface application	1.00
	Slope	0.01	Slope	0.01	Too acid	0.31
					Too steep for sprinkler application	0.10
CfD2:						
Cardinal	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for surface application	1.00
	Slope	0.96	Slope	0.96	Restricted permeability	1.00
	Too acid	0.32	Too acid	0.91	Too steep for sprinkler application	0.98
					Too acid	0.91
CfF:						
Cardinal	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
	Too acid	0.73	Too acid	1.00	Restricted permeability	1.00
					Too acid	1.00
CgA:						
Carlisle	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Leaching	0.90	Low adsorption	1.00	Too acid	0.21
	Too acid	0.05	Too acid	0.21		
CkA:						
Chenango	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Droughty	0.63	Droughty	0.63	Droughty	0.63
	Leaching	0.45	Too acid	0.07	Too acid	0.07
	Too acid	0.02				

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CkB:						
Chenango	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Leaching	0.45	Too acid	0.85	Too acid	0.85
	Too acid	0.27	Droughty	0.01	Droughty	0.01
	Droughty	0.01				
CkC:						
Chenango	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Droughty	0.54	Droughty	0.54	Too steep for surface application	1.00
	Leaching	0.45	Too acid	0.42	Droughty	0.54
	Slope	0.16	Slope	0.16	Too acid	0.42
	Too acid	0.11			Too steep for sprinkler application	0.40
CkD:						
Chenango	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Slope	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.79	Too acid	1.00	Too steep for sprinkler application	1.00
	Too acid	0.73	Droughty	0.79	Too acid	1.00
	Leaching	0.45			Droughty	0.79
CoB:						
Colonie	Somewhat limited		Very limited		Very limited	
	Droughty	0.53	Too acid	1.00	Too acid	1.00
	Too acid	0.50	Droughty	0.53	Droughty	0.53
	Leaching	0.45	Filtering capacity	0.01	Too steep for surface application	0.08
	Filtering capacity	0.01			Filtering capacity	0.01
CoD:						
Colonie	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Too acid	1.00	Too steep for surface application	1.00
	Droughty	0.54	Slope	0.96	Too acid	1.00
	Too acid	0.50	Droughty	0.54	Too steep for sprinkler application	0.98
	Leaching	0.45	Filtering capacity	0.01	Droughty	0.54
	Filtering capacity	0.01			Filtering capacity	0.01

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpB:						
Colonie	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.62	Too acid	1.00	Too acid	1.00
CuA:						
Conneaut	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.37	Too acid	0.96	Too steep for surface application	1.00
	Slope	0.04	Slope	0.04	Too acid	0.96
					Too steep for sprinkler application	0.22
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Droughty	0.87	Too steep for surface application	1.00
	Droughty	0.87	Restricted permeability	0.31	Droughty	0.87
	Restricted permeability	0.41	Too acid	0.21	Restricted permeability	0.31
	Too acid	0.05	Slope	0.01	Too acid	0.21
DeC2:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.37	Too acid	0.96	Too steep for surface application	1.00
	Slope	0.01	Slope	0.01	Too acid	0.96
					Too steep for sprinkler application	0.10

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeC2:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Droughty	0.87	Too steep for surface application	1.00
	Droughty	0.87	Restricted permeability	0.31	Droughty	0.87
	Restricted permeability	0.41	Too acid	0.21	Restricted permeability	0.31
	Too acid	0.05	Slope	0.01	Too acid	0.21
DhB:						
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.37	Too acid	0.96	Too acid	0.96
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Low adsorption	1.00	Restricted permeability	1.00
	Too acid	0.50	Restricted permeability	1.00	Too acid	1.00
	Runoff	0.40	Too acid	1.00	Too steep for surface application	0.32
	Droughty	0.31	Droughty	0.31	Droughty	0.31
EnB:						
Elnora	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.83	Too acid	0.85	Too acid	0.85
	Too acid	0.27	Droughty	0.83	Droughty	0.83
FcA:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.50	Too acid	1.00	Too acid	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
FcB:						
Fitchville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.41	Too acid	0.96	Too acid	0.96
	Too acid	0.37	Restricted permeability	0.31	Restricted permeability	0.31
					Too steep for surface application	0.08

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GaF:						
Gageville	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Too steep for sprinkler application	1.00
	Too acid	0.62	Too acid	1.00	Restricted permeability	1.00
					Too acid	1.00
GfA:						
Glenford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
GfB:						
Glenford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.56	Too acid	1.00	Too acid	1.00
	Restricted permeability	0.41	Restricted permeability	0.31	Restricted permeability	0.31
					Too steep for surface application	0.08
GfC:						
Glenford	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.41	Too acid	0.96	Too steep for surface application	1.00
	Too acid	0.37	Restricted permeability	0.31	Too acid	0.96
	Slope	0.04	Slope	0.04	Restricted permeability	0.31
					Too steep for sprinkler application	0.22
GfD:						
Glenford	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	1.00	Slope	1.00	Too steep for surface application	1.00
	Restricted permeability	0.41	Too acid	0.96	Too steep for sprinkler application	1.00
	Too acid	0.37	Restricted permeability	0.31	Too acid	0.96
					Restricted permeability	0.31

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HaA:						
Harbor	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.27	Too acid	0.85	Too acid	0.85
	Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
HaC:						
Harbor	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.18	Too acid	0.67	Too steep for surface application	1.00
	Slope	0.16	Slope	0.16	Too acid	0.67
	Filtering capacity	0.01	Filtering capacity	0.01	Too steep for sprinkler application	0.40
HbB:						
Harbor	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Leaching	0.70				
HoA:						
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Low adsorption	1.00	Restricted permeability	1.00
	Droughty	0.81	Restricted permeability	1.00	Droughty	0.81
	Depth to bedrock	0.65	Droughty	0.81	Depth to bedrock	0.65
	Runoff	0.40	Depth to bedrock	0.65	Too acid	0.07
HoB:						
Hornell	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Low adsorption	1.00	Restricted permeability	1.00
	Droughty	0.54	Restricted permeability	1.00	Too acid	0.96
	Runoff	0.40	Too acid	0.96	Droughty	0.54
	Too acid	0.37	Droughty	0.54	Depth to bedrock	0.35

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KfA:						
Kingsville	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Leaching	0.90	Too acid	0.31	Too acid	0.31
	Too acid	0.08	Droughty	0.04	Droughty	0.04
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Runoff	0.40	Too acid	0.42	Too acid	0.42
	Too acid	0.11				
MtA:						
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
	Too acid	0.50	Low adsorption	1.00	Too acid	1.00
	Depth to bedrock	0.46	Too acid	1.00	Depth to bedrock	0.46
	Droughty	0.22	Depth to bedrock	0.46	Droughty	0.22
			Droughty	0.22		
MtB:						
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
	Too acid	0.37	Low adsorption	1.00	Too acid	0.96
	Depth to bedrock	0.35	Too acid	0.96	Depth to bedrock	0.35
	Droughty	0.12	Depth to bedrock	0.35	Droughty	0.12
			Droughty	0.12		
OrA:						
Orrville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Too acid	0.11	Too acid	0.42	Too acid	0.42
OtA:						
Otego	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Too acid	0.22	Too acid	0.77	Too acid	0.77

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OuC:						
Otisville	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Droughty	1.00	Droughty	1.00	Droughty	1.00
	Too acid	0.50	Too acid	1.00	Too steep for surface application	1.00
	Leaching	0.45	Slope	0.16	Too acid	1.00
	Slope	0.16			Too steep for sprinkler application	0.40
PaA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.74	Too acid	1.00	Too acid	1.00
	Too acid	0.50	Restricted permeability	0.60	Restricted permeability	0.60
	Filtering capacity	0.01	Filtering capacity	0.01	Filtering capacity	0.01
PbA:						
Painesville	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.82	Droughty	0.82	Too steep for surface application	1.00
	Too acid	0.11	Too acid	0.42	Droughty	0.82
	Slope	0.01	Slope	0.01	Too acid	0.42
					Too steep for sprinkler application	0.10
PeD:						
Pierpont	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	1.00	Slope	1.00	Too steep for surface application	1.00
	Droughty	0.72	Too acid	1.00	Too steep for sprinkler application	1.00
	Too acid	0.50	Droughty	0.72	Too acid	1.00
					Droughty	0.72
Pg:						
Pits, Gravel	Not rated		Not rated		Not rated	
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PrA:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Too acid	1.00	Too acid	1.00
	Droughty	0.62	Droughty	0.62	Droughty	0.62
	Too acid	0.62	Restricted permeability	0.31	Restricted permeability	0.31
	Restricted permeability	0.41				
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.18	Too acid	0.67	Too acid	0.67
PrB:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Too acid	1.00	Too acid	1.00
	Droughty	0.98	Droughty	0.98	Droughty	0.98
	Too acid	0.62	Restricted permeability	0.31	Restricted permeability	0.31
	Restricted permeability	0.41				
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.27	Too acid	0.85	Too acid	0.85
					Too steep for surface application	0.32
PrB2:						
Platea	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Too acid	1.00	Too acid	1.00
	Droughty	0.98	Droughty	0.98	Droughty	0.98
	Too acid	0.62	Restricted permeability	0.31	Restricted permeability	0.31
	Restricted permeability	0.41				
Darien	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
	Too acid	0.37	Too acid	0.96	Too acid	0.96
					Too steep for surface application	0.08

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PtB:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Not rated		Not rated		Not rated	
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.50	Too acid	1.00	Too acid	1.00
RhB:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too acid	0.37	Too acid	0.96	Too acid	0.96
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Leaching	0.70	Too acid	1.00	Too acid	1.00
	Too acid	0.50	Restricted permeability	0.31	Restricted permeability	0.31
	Restricted permeability	0.41				
StA:						
Stanhope	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Too acid	0.62	Too acid	1.00	Too acid	1.00
ToC:						
Towerville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Low adsorption	1.00	Too steep for surface application	1.00
	Restricted permeability	0.74	Too acid	1.00	Too acid	1.00
	Too acid	0.56	Restricted permeability	0.60	Restricted permeability	0.60
	Droughty	0.22	Droughty	0.22	Too steep for sprinkler application	0.40

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ToD:						
Towerville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Low adsorption	1.00	Too steep for surface application	1.00
	Slope	1.00	Too acid	1.00	Too steep for sprinkler application	1.00
	Restricted permeability	0.74	Slope	1.00	Too acid	1.00
	Too acid	0.62	Restricted permeability	0.60	Restricted permeability	0.60
TyB:						
Tyner	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Leaching	0.45	Too acid	0.96	Too acid	0.96
	Too acid	0.37	Droughty	0.06	Droughty	0.06
	Droughty	0.06				
Otisville	Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
	Droughty	1.00	Droughty	1.00	Droughty	1.00
	Leaching	0.45	Too acid	0.96	Too acid	0.96
	Too acid	0.37			Too steep for surface application	0.32
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Not rated		Not rated		Not rated	
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Not rated		Not rated		Not rated	
Otisville	Not rated		Not rated		Not rated	
VeA:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Too acid	1.00	Too acid	1.00
	Droughty	0.83	Droughty	0.83	Droughty	0.83
	Too acid	0.78				

Table 25.—Agricultural Waste Management—Continued

Map symbol and soil name	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VeB:						
Venango	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Dense layer	1.00	Too acid	1.00	Too acid	1.00
	Droughty	0.73	Droughty	0.73	Droughty	0.73
	Too acid	0.50				
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Runoff	0.40	Too acid	0.85	Too acid	0.85
	Too acid	0.27	Filtering capacity	0.01	Filtering capacity	0.01
	Filtering capacity	0.01				
WeA:						
Willette	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Low adsorption	1.00	Restricted permeability	1.00
	Leaching	0.90	Restricted permeability	1.00	Too acid	0.96
	Too acid	0.37	Too acid	0.96		

Table 26.—Water Management Part 1

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Thin layer	0.61		
			Piping	0.50		
BkB:						
Blakeslee	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Thin layer	0.63		
			Seepage	0.50		
BkC:						
Blakeslee	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Thin layer	0.50		
			Seepage	0.50		
CaB:						
Cambridge	Somewhat limited		Very limited		Very limited	
	Seepage	0.50	Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	0.62		
			Piping	0.50		
CaC:						
Cambridge	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.50	Depth to saturated zone	0.90	No ground water	1.00
			Thin layer	0.53		
			Piping	0.50		
CaD:						
Cambridge	Very limited		Somewhat limited		Very limited	
	Slippage	1.00	Depth to saturated zone	0.85	No ground water	1.00
	Seepage	0.50	Thin layer	0.57		
	Slope	0.03	Piping	0.50		
CcA:						
Canadice	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Slow refill	0.46
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to compact	1.00		
			Thin layer	0.80		

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CdA:						
Caneadea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.66		
CdB:						
Caneadea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.13		
CeA:						
Caneadea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.62		
Canadice	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Slow refill	0.46
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to compact	1.00		
			Thin layer	0.50		
CfC2:						
Cardinal	Very limited		Very limited		Very limited	
	Slippage	1.00	Depth to saturated zone	0.99	No ground water	1.00
			Thin layer	0.70		
CfD2:						
Cardinal	Very limited		Somewhat limited		Very limited	
	Slippage	1.00	Depth to saturated zone	0.90	No ground water	1.00
	Slope	0.02	Thin layer	0.63		
CfF:						
Cardinal	Very limited		Somewhat limited		Very limited	
	Slippage	1.00	Thin layer	0.76	No ground water	1.00
	Slope	0.72	Depth to saturated zone	0.62		
CgA:						
Carlisle	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	0.50
			Depth to saturated zone	1.00		
			Content of organic matter	1.00		
CkA:						
Chenango	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.30	No ground water	1.00
			Seepage	0.28		
CkB:						
Chenango	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.76	No ground water	1.00

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CkC:						
Chenango	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.37	No ground water	1.00
			Seepage	0.28		
CkD:						
Chenango	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.28	No ground water	1.00
	Slippage	1.00	Thin layer	0.20		
	Slope	0.08				
CoB:						
Colonie	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.83	No ground water	1.00
			Seepage	0.50		
CoD:						
Colonie	Very limited		Somewhat limited		Very limited	
	Slippage	1.00	Thin layer	0.72	No ground water	1.00
	Seepage	1.00	Seepage	0.50		
	Slope	0.02				
CpB:						
Colonie	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.83	No ground water	1.00
			Seepage	0.50		
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Not limited		Very limited		Very limited	
			Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	1.00		
			Piping	0.50		
CuA:						
Conneaut	Not limited		Very limited		Very limited	
			Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	1.00		
			Piping	0.50		
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.87		
			Piping	0.50		
Platea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Piping	0.50		
			Thin layer	0.30		

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeC2:						
Darien	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.70		
			Piping	0.50		
Platea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Piping	0.50		
			Thin layer	0.30		
DhB:						
Darien	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.89		
			Piping	0.50		
Hornell	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.77	Thin layer	1.00	Depth to bedrock	1.00
			Depth to saturated zone	1.00	Slow refill	0.28
			Hard to compact	1.00	Cutbanks cave	0.10
EnB:						
Elnora	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.50
			Seepage	0.50		
			Thin layer	0.03		
FcA:						
Fitchville	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.25	Depth to saturated zone	1.00	Slow refill	0.46
			Thin layer	0.74	Cutbanks cave	0.10
			Piping	0.50		
FcB:						
Fitchville	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.25	Depth to saturated zone	1.00	Slow refill	0.28
			Thin layer	0.76	Cutbanks cave	0.10
			Piping	0.50		
GaF:						
Gageville	Very limited		Somewhat limited		Very limited	
	Slippage	1.00	Thin layer	0.87	No ground water	1.00
	Slope	0.82	Depth to saturated zone	0.62		
			Piping	0.50		
GfA:						
Glenford	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.25	Thin layer	1.00	Cutbanks cave	0.50
			Depth to saturated zone	1.00	Slow refill	0.46

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GfB:						
Glenford	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.25	Depth to saturated zone	1.00	Cutbanks cave	0.50
			Thin layer	0.83	Slow refill	0.46
GfC:						
Glenford	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.25	Depth to saturated zone	1.00	Slow refill	0.46
			Thin layer	0.80	Cutbanks cave	0.10
GfD:						
Glenford	Very limited		Very limited		Somewhat limited	
	Slippage	1.00	Depth to saturated zone	1.00	Slow refill	0.46
	Seepage	0.25	Thin layer	0.63	Cutbanks cave	0.10
	Slope	0.06				
HaA:						
Harbor	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	0.81		
HaC:						
Harbor	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	0.62		
HbB:						
Harbor	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	0.81		
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Thin layer	1.00	Cutbanks cave	0.50
			Depth to saturated zone	1.00		
HoA:						
Hornell	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.17	Thin layer	1.00	Slow refill	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to compact	1.00		
HoB:						
Hornell	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.09	Thin layer	1.00	Slow refill	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to compact	1.00		

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KfA:						
Kingsville	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	0.50
			Depth to saturated zone	1.00		
			Seepage	0.50		
			Thin layer	0.33		
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Not limited		Very limited		Very limited	
			Ponding	1.00	No ground water	1.00
			Depth to saturated zone	1.00		
			Thin layer	0.83		
			Piping	0.50		
MtA:						
Mitiwanga	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.86	Thin layer	1.00	Depth to bedrock	1.00
	Seepage	0.50	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.50	Cutbanks cave	0.10
MtB:						
Mitiwanga	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.83	Thin layer	1.00	Depth to bedrock	1.00
	Seepage	0.50	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.50	Cutbanks cave	0.10
OrA:						
Orrville	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Thin layer	1.00	Cutbanks cave	0.50
			Depth to saturated zone	1.00		
			Piping	0.50		
OtA:						
Otego	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.50	Depth to saturated zone	1.00	Cutbanks cave	0.50
			Thin layer	0.26	Slow refill	0.28
OuC:						
Otisville	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.46	No ground water	1.00
			Seepage	0.28		
PaA:						
Painesville	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	1.00		
			Piping	0.50		

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PbA:						
Painesville	Very limited		Very limited		Very limited	
	Seepage	1.00	Thin layer	1.00	No ground water	1.00
			Depth to saturated zone	1.00		
			Piping	0.50		
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Very limited		Very limited		Very limited	
	Slippage	1.00	Depth to saturated zone	0.99	No ground water	1.00
	Seepage	0.25	Thin layer	0.93		
			Piping	0.50		
PeD:						
Pierpont	Very limited		Somewhat limited		Very limited	
	Slippage	1.00	Depth to saturated zone	0.97	No ground water	1.00
	Seepage	0.50	Thin layer	0.67		
	Slope	0.03	Piping	0.50		
Pg:						
Pits, Gravel	Very limited		Not rated		Very limited	
	Seepage	1.00			No ground water	1.00
	Slope	0.01				
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.66		
			Piping	0.50		
Darien	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.87		
			Piping	0.50		
PrB:						
Platea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.83		
			Piping	0.50		
Darien	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.96		
			Piping	0.50		
PrB2:						
Platea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.83		
			Piping	0.50		

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PrB2:						
Darien	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.80		
			Piping	0.50		
PtB:						
Platea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.83		
			Piping	0.50		
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Piping	0.50		
			Thin layer	0.30		
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.50	Depth to saturated zone	1.00	Cutbanks cave	0.50
			Thin layer	0.37	Slow refill	0.28
RhB:						
Red Hook	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.50	Depth to saturated zone	1.00	Cutbanks cave	0.50
			Thin layer	0.46	Slow refill	0.28
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.25	Thin layer	1.00	Cutbanks cave	0.50
			Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00		
			Piping	0.50		
StA:						
Stanhope	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.25	Depth to saturated zone	1.00	Slow refill	0.46
			Thin layer	0.67	Cutbanks cave	0.10
			Piping	0.50		
ToC:						
Towerville	Somewhat limited		Very limited		Somewhat limited	
	Depth to bedrock	0.05	Thin layer	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.50		

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ToD:						
Towerville	Very limited		Very limited		Somewhat limited	
	Slippage	1.00	Thin layer	1.00	Slow refill	0.28
	Seepage	0.50	Depth to saturated zone	1.00	Cutbanks cave	0.10
	Depth to bedrock	0.08	Piping	0.50		
	Slope	0.03				
TyB:						
Tyner	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.53	No ground water	1.00
Otisville	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.50	No ground water	1.00
			Seepage	0.28		
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.50
			Seepage	0.50		
			Thin layer	0.03		
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.53	No ground water	1.00
Otisville	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.50	No ground water	1.00
			Seepage	0.28		
VeA:						
Venango	Somewhat limited		Very limited		Very limited	
	Seepage	0.50	Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.87		
VeB:						
Venango	Somewhat limited		Very limited		Very limited	
	Seepage	0.50	Depth to saturated zone	1.00	No ground water	1.00
			Thin layer	0.61		
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Thin layer	1.00	Cutbanks cave	0.50
			Depth to saturated zone	1.00		
			Piping	0.50		

Table 26.—Water Management Part 1—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WeA:						
Willette	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Ponding	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
			Hard to compact	1.00		
			Thin layer	0.07		

Table 27.—Water Management Part 2

(The information in this table indicates the dominant soil condition but does not eliminate the need for on-site 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	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Be:						
Beaches	Not rated		Not rated		Not rated	
BkA:						
Blakeslee	Somewhat limited		Very limited		Not limited	
	Depth to saturated zone	0.96	Depth to saturated zone	1.00		
BkB:						
Blakeslee	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Slope	0.04
BkC:						
Blakeslee	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.96	Depth to saturated zone	1.00	Slope	0.63
CaB:						
Cambridge	Very limited		Very limited		Not limited	
	Water erosion	1.00	Water erosion	1.00		
	Rooting depth	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	0.93	Rooting depth	1.00		
CaC:						
Cambridge	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Rooting depth	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	1.00	Rooting depth	1.00		
	Slope	1.00	Slope	1.00		
	Droughty	1.00				
CaD:						
Cambridge	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
	Water erosion	1.00	Slope	1.00		
	Rooting depth	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	0.99	Rooting depth	1.00		
CcA:						
Canadice	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00
	Restricted permeability	0.99	Ponding	1.00	Restricted permeability	0.99
			Restricted permeability	0.99		

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CdA:						
Caneadea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.99
	Restricted permeability	0.99	Restricted permeability	0.99		
CdB:						
Caneadea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.99
	Restricted permeability	0.99	Restricted permeability	0.99		
CeA:						
Caneadea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.99
	Restricted permeability	0.99	Restricted permeability	0.99		
Canadice	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00
	Restricted permeability	0.99	Ponding	1.00	Restricted permeability	0.99
			Restricted permeability	0.99		
CfC2:						
Cardinal	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.91
	Restricted permeability	0.91	Restricted permeability	0.91	Slope	0.84
CfD2:						
Cardinal	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Frost action	1.00
	Water erosion	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.91
	Restricted permeability	0.91	Restricted permeability	0.91		
CfF:						
Cardinal	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Frost action	1.00
	Water erosion	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.93	Depth to saturated zone	1.00	Restricted permeability	0.91
	Restricted permeability	0.91	Restricted permeability	0.91		

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CgA:						
Carlisle	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
			Ponding	1.00	Frost action	1.00
					Subsidence	1.00
CkA:						
Chenango	Very limited		Very limited		Very limited	
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
CkB:						
Chenango	Not limited		Not limited		Very limited	
					Depth to saturated zone	1.00
CkC:						
Chenango	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Cutbanks cave	1.00
	Droughty	1.00	Slope	1.00	Depth to saturated zone	1.00
					Slope	1.00
CkD:						
Chenango	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
CoB:						
Colonie	Very limited		Very limited		Very limited	
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
					Slope	0.04
CoD:						
Colonie	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
CpB:						
Colonie	Very limited		Very limited		Very limited	
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
					Slope	0.04
Urban Land	Not rated		Not rated		Not rated	
CtA:						
Conneaut	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.91
	Restricted permeability	0.91	Restricted permeability	0.91		

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CuA:						
Conneaut	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.91
	Restricted permeability	0.91	Restricted permeability	0.91		
Urban Land	Not rated		Not rated		Not rated	
DAM:						
Dam	Not rated		Not rated		Not rated	
DeC:						
Darien	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.96
	Slope	1.00	Slope	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		
Platea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.84
	Droughty	1.00	Restricted permeability	0.22	Restricted permeability	0.22
	Restricted permeability	0.22				
DeC2:						
Darien	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.84
	Restricted permeability	0.22	Restricted permeability	0.22	Restricted permeability	0.22
Platea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.84
	Droughty	1.00	Restricted permeability	0.22	Restricted permeability	0.22
	Restricted permeability	0.22				
DhB:						
Darien	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DhB:						
Hornell	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to hard bedrock	1.00	Depth to saturated zone	1.00	Restricted permeability	0.94
	Depth to saturated zone	1.00	Restricted permeability	0.94	Slope	0.16
	Restricted permeability	0.94	Depth to hard bedrock	0.20	Depth to bedrock	0.05
EnB:						
Elnora	Very limited		Very limited		Very limited	
	Droughty	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to saturated zone	0.96	Too sandy	1.00		
FcA:						
Fitchville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		
FcB:						
Fitchville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22	Slope	0.04
GaF:						
Gageville	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
	Water erosion	1.00	Slope	1.00	Restricted permeability	0.22
	Depth to saturated zone	0.93	Depth to saturated zone	1.00		
	Restricted permeability	0.22	Restricted permeability	0.22		
GfA:						
Glenford	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		
GfB:						
Glenford	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Too sandy	1.00	Slope	0.04
			Restricted permeability	0.22		

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GfC:						
Glenford	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.96
	Slope	1.00	Slope	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		
GfD:						
Glenford	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Frost action	1.00
	Water erosion	1.00	Slope	1.00	Slope	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		
HaA:						
Harbor	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.99	Depth to saturated zone	1.00	Restricted permeability	0.41
	Restricted permeability	0.41	Restricted permeability	0.41		
HaC:						
Harbor	Very limited		Very limited		Very limited	
	Slope	1.00	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	0.93	Slope	1.00	Restricted permeability	0.41
	Restricted permeability	0.41	Restricted permeability	0.41		
HbB:						
Harbor	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.99	Depth to saturated zone	1.00	Restricted permeability	0.41
	Restricted permeability	0.41	Restricted permeability	0.41		
Urban Land	Not rated		Not rated		Not rated	
HmA:						
Holly	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00
			Too sandy	1.00	Flooding	1.00
HoA:						
Hornell	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.94
	Droughty	1.00	Restricted permeability	0.94	Depth to bedrock	0.17
	Restricted permeability	0.94	Depth to soft bedrock	0.64		
	Depth to soft bedrock	0.64				

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HoB:						
Hornell	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.94
	Restricted permeability	0.94	Restricted permeability	0.94	Depth to bedrock	0.09
	Depth to soft bedrock	0.35	Depth to soft bedrock	0.35	Slope	0.04
KfA:						
Kingsville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Droughty	1.00	Ponding	1.00	Cutbanks cave	1.00
			Too sandy	1.00		
La:						
Landfills	Not rated		Not rated		Not rated	
MhA:						
Mill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.22	Ponding	1.00	Frost action	1.00
			Restricted permeability	0.22	Restricted permeability	0.22
MtA:						
Mitiwanga	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to saturated zone	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to hard bedrock	0.46	Depth to bedrock	0.12
MtB:						
Mitiwanga	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to saturated zone	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to hard bedrock	0.35	Depth to bedrock	0.09
OrA:						
Orrville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
OtA:						
Otego	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	0.99	Depth to saturated zone	1.00	Flooding	1.00
OuC:						
Otisville	Very limited		Very limited		Very limited	
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
	Slope	1.00	Slope	1.00	Depth to saturated zone	1.00
					Slope	1.00

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PaA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00
	Restricted permeability	0.40	Restricted permeability	0.40	Restricted permeability	0.40
PbA:						
Painesville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00
	Restricted permeability	0.40	Restricted permeability	0.40	Restricted permeability	0.40
Urban Land	Not rated		Not rated		Not rated	
PeC2:						
Pierpont	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Rooting depth	1.00	Depth to saturated zone	1.00	Slope	0.84
	Depth to saturated zone	1.00	Rooting depth	1.00		
	Droughty	1.00				
PeD:						
Pierpont	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Frost action	1.00
	Water erosion	1.00	Slope	1.00	Slope	1.00
	Rooting depth	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	1.00	Rooting depth	1.00		
Pg:						
Pits, Gravel	Very limited		Very limited		Not rated	
	Droughty	1.00	Too sandy	1.00		
	Slope	1.00	Slope	1.00		
Pk:						
Pits, Quarries	Not rated		Not rated		Not rated	
PrA:						
Platea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		
Darien	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22		

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PrB:						
Platea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Droughty	1.00	Restricted permeability	0.22		
	Restricted permeability	0.22				
PrB:						
Darien	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22	Slope	0.16
PrB2:						
Platea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Droughty	1.00	Restricted permeability	0.22		
	Restricted permeability	0.22				
Darien	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Restricted permeability	0.22	Restricted permeability	0.22	Slope	0.04
PtB:						
Platea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.22
	Droughty	1.00	Restricted permeability	0.22		
	Restricted permeability	0.22				
Urban Land	Not rated		Not rated		Not rated	
PtC:						
Platea	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.84
	Droughty	1.00	Restricted permeability	0.22	Restricted permeability	0.22
	Restricted permeability	0.22				
Urban Land	Not rated		Not rated		Not rated	
RhA:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RhB:						
Red Hook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00
Rw:						
Riverwash	Not rated		Not rated		Not rated	
SbA:						
Sebring	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Frost action	1.00
	Restricted permeability	0.22	Ponding	1.00	Restricted permeability	0.22
			Too sandy	1.00		
			Restricted permeability	0.22		
StA:						
Stanhope	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
ToC:						
Towerville	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Restricted permeability	0.40
	Slope	1.00	Slope	1.00	Depth to bedrock	0.04
	Restricted permeability	0.40	Restricted permeability	0.40		
	Depth to soft bedrock	0.15	Depth to soft bedrock	0.15		
ToD:						
Towerville	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
	Water erosion	1.00	Slope	1.00	Restricted permeability	0.40
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.07
	Restricted permeability	0.40	Restricted permeability	0.40		
	Depth to soft bedrock	0.29	Depth to soft bedrock	0.29		
TyB:						
Tyner	Not limited		Very limited		Very limited	
			Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
Otisville	Very limited		Very limited		Very limited	
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
					Slope	0.16

Table 27.—Water Management Part 2—Continued

Map symbol and soil name	Constructing grassed waterways		Constructing terraces and diversions		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ud:						
Udorthents	Not rated		Not rated		Not rated	
Un:						
Urban Land	Not rated		Not rated		Not rated	
UrB:						
Urban Land	Not rated		Not rated		Not rated	
Elnora	Very limited		Very limited		Very limited	
	Droughty	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
	Depth to saturated zone	0.96	Too sandy	1.00		
UtB:						
Urban Land	Not rated		Not rated		Not rated	
Tyner	Not limited		Very limited		Very limited	
			Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
Otisville	Very limited		Very limited		Very limited	
	Droughty	1.00	Too sandy	1.00	Cutbanks cave	1.00
					Depth to saturated zone	1.00
					Slope	0.16
VeA:						
Venango	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Droughty	1.00				
VeB:						
Venango	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
W:						
Water	Not rated		Not rated		Not rated	
WcA:						
Wick	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Frost action	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
WeA:						
Willette	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.91	Ponding	1.00	Frost action	1.00
			Restricted permeability	0.91	Subsidence	1.00
					Restricted permeability	0.91

Table 28.—Engineering Index Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Be:												
Beaches---------	---	---	---	---	---	---	---	---	---	---	---	---
BkA:												
Blakeslee-------	0-10	Silt loam	CL, CL-ML	A-4	0	0	85-100	85-100	70-100	50-90	20-35	4-11
	10-38	Silt loam, silty clay loam, gravelly loam	CL-ML, CL	A-4, A-6	0	0-5	55-100	55-100	45-100	35-95	20-40	5-20
	38-80	Stratified extremely gravelly sandy loam to very gravelly coarse sandy loam to gravelly loam, very gravelly coarse sandy loam	ML, CL-ML, GC, GM, SM	A-1-b, A-2-4, A-1-a, A-4	0	0-20	30-70	10-65	1-60	1-50	15-30	NP-8

Table 28.—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	
BkB:												
Blakeslee-------	0-5	Silt loam	CL-ML, CL	A-4	0	0	85-100	85-100	70-100	50-90	20-35	4-11
	5-26	Silt loam, silty clay loam, clay loam, gravelly loam	CL, CL-ML	A-4, A-6	0	0-5	55-100	55-100	45-100	35-95	20-40	5-20
	26-39	Gravelly coarse sandy loam, sandy loam, stratified very gravelly coarse sandy loam to gravelly loam to extremely gravelly sandy loam	ML, CL-ML, SM, GC, GM	A-2-4, A-4, A-1-b, A-1-a	0	0-10	45-100	35-85	2-85	2-75	15-30	NP-8
	39-80	Very gravelly coarse sandy loam, stratified very gravelly coarse sandy loam to gravelly loam to extremely gravelly sandy loam	GC, GM, SM, CL-ML, ML	A-2-4, A-4, A-1-b, A-1-a	0	0-20	30-70	10-65	1-60	1-50	15-30	NP-8

Table 28.—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	
BkC:												
Blakeslee-------	0-10	Silt loam	CL, CL-ML	A-4	0	0	85-100	85-100	70-100	50-90	20-35	4-11
	10-27	Silt loam, silty clay loam, gravelly loam	CL-ML, CL	A-4, A-6	0	0-5	55-100	55-100	45-100	35-95	20-40	5-20
	27-35	Gravelly coarse sandy loam, stratified very gravelly coarse sandy loam to gravelly loam to extremely gravelly sandy loam	GM, GC, SM, CL-ML, ML	A-1-b, A-4, A-2-4, A-1-a	0	0-10	45-100	35-85	2-85	2-75	15-30	NP-8
	35-80	Very gravelly coarse sandy loam, stratified very gravelly coarse sandy loam to gravelly loam to extremely gravelly sandy loam	GM, GC, SM, CL-ML, ML	A-1-b, A-1-a, A-4, A-2-4	0	0-20	30-70	10-65	1-60	1-50	15-30	NP-8
CaB:												
Cambridge-------	0-2	Silt loam	CL-ML, ML	A-4	0	0	90-100	70-100	60-100	40-90	15-40	4-11
	2-25	Silt loam, loam, gravelly loam	CL-ML, CL	A-4	0	0-5	70-100	65-95	55-95	40-85	25-35	5-11
	25-51	Silt loam, gravelly loam, clay loam	CL, CL-ML, SC	A-2-4, A-6, A-2-6, A-4	0	0-5	65-95	50-95	40-95	30-90	20-35	5-15
	51-72	Silt loam, loam, gravelly loam	CL, CL-ML, SC	A-4, A-6	0	0-5	70-95	50-95	40-95	30-90	20-35	5-11

Table 28.—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	
CaC:												
Cambridge-------	0-10	Silt loam	ML, CL-ML	A-4	0	0	90-100	70-100	60-100	40-90	15-40	4-11
	10-21	Silt loam, loam, gravelly loam	CL, CL-ML	A-4	0	0-5	70-100	65-95	55-95	40-85	25-35	5-11
	21-36	Silt loam, gravelly loam, clay loam	SC, CL-ML, CL	A-2-4, A-2-6, A-6, A-4	0	0-5	65-95	50-95	40-95	30-90	20-35	5-15
	36-80	Silt loam, loam, gravelly loam	CL, CL-ML, SC	A-6, A-4	0	0-5	70-95	50-95	40-95	30-90	20-35	5-11
CaD:												
Cambridge-------	0-10	Silt loam	CL-ML, ML	A-4	0	0	90-100	70-100	60-100	40-90	15-40	4-11
	10-25	Silt loam, loam, gravelly loam	CL, CL-ML	A-4	0	0-5	70-100	65-95	55-95	40-85	25-35	5-11
	25-37	Silt loam, clay loam, gravelly loam	CL, CL-ML, SC	A-4, A-6, A-2-6, A-2-4	0	0-5	65-95	50-95	40-95	30-90	20-35	5-15
	37-80	Silt loam, loam, gravelly loam	CL-ML, SC, CL	A-4, A-6	0	0-5	70-95	50-95	40-95	30-90	20-35	5-11
CcA:												
Canadice--------	0-9	Silt loam, silty clay loam	MH, CL, ML	A-6, A-7	0	0	100	95-100	85-100	65-95	25-55	10-25
	9-45	Silty clay, silty clay loam	CH, CL, ML, MH	A-6, A-7	0	0	100	100	95-100	85-95	35-65	12-28
	45-80	Silty clay, silty clay loam, stratified silt loam	ML, CL, CH, MH	A-7, A-6	0	0	100	95-100	90-100	80-95	30-65	10-28
CdA:												
Caneadea--------	0-12	Silt loam	CL	A-6, A-7	0	0	100	98-100	90-100	70-95	25-45	10-25
	12-52	Silty clay, silty clay loam	CH, CL	A-7-6, A-6	0	0	100	98-100	95-100	85-95	35-55	12-28
	52-80	Silty clay, silty clay loam	CL, CH	A-7-6, A-6	0	0	100	98-100	95-100	85-95	35-55	12-28

Table 28.—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	
CdB:												
Caneadea--------	0-4	Silt loam	CL	A-7, A-6	0	0	100	98-100	90-100	70-95	25-45	10-25
	4-60	Silty clay, silty clay loam	CL, CH	A-6, A-7-6	0	0	100	98-100	95-100	85-95	35-55	12-28
	60-80	Silty clay, stratified silty clay loam, stratified silt loam	CL, CH	A-7-6, A-6	0	0	100	98-100	95-100	85-95	35-55	12-28
CeA:												
Caneadea--------	0-10	Silt loam	CL	A-6, A-7	0	0	100	98-100	90-100	70-95	25-45	10-25
	10-51	Silty clay, silty clay loam	CH, CL	A-6, A-7-6	0	0	100	98-100	95-100	85-95	35-55	12-28
	51-80	Silty clay, silty clay loam, stratified silt loam	CL, CH	A-6, A-7-6	0	0	100	98-100	95-100	85-95	35-55	12-28
Canadice--------	0-10	Silt loam, silty clay loam	ML, CL, MH	A-6, A-7	0	0	100	95-100	85-100	65-95	25-55	10-25
	10-35	Silty clay, silty clay loam	CH, CL, MH, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-65	12-28
	35-80	Silty clay, silty clay loam, silt loam	CH, CL, MH, ML	A-7, A-6	0	0	100	95-100	90-100	80-95	30-65	10-28
CfC2:												
Cardinal--------	0-5	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-40	4-20
	5-18	Silty clay loam, silt loam	CL	A-6, A-7	0	0	95-100	95-100	85-100	65-90	25-50	10-25
	18-57	Silty clay, silty clay loam	CL, CH	A-6, A-7-6	0	0	95-100	95-100	90-100	80-95	35-55	12-28
	57-80	Silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	90-100	90-100	85-100	75-95	35-55	12-28

Table 28.—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	
CfD2:												
Cardinal--------	0-12	Silt loam	CL-ML, CL	A-6, A-4	0	0	100	100	90-100	70-90	25-40	4-20
	12-17	Silty clay loam, silt loam	CL	A-7, A-6	0	0	95-100	95-100	85-100	65-90	25-50	10-25
	17-58	Silty clay, silty clay loam	CH, CL	A-6, A-7-6	0	0	95-100	95-100	90-100	80-95	35-55	12-28
	58-80	Silty clay, stratified silty clay loam	CH, CL	A-6, A-7	0	0	90-100	90-100	85-100	75-95	35-55	12-28
CfF:												
Cardinal--------	0-13	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	25-40	4-20
	13-22	Silty clay loam, silt loam	CL	A-6, A-7	0	0	95-100	95-100	85-100	65-90	25-50	10-25
	22-43	Silty clay, silty clay loam	CH, CL	A-6, A-7-6	0	0	95-100	95-100	90-100	80-95	35-55	12-28
	43-80	Silty clay, silty clay loam	CL, CH	A-7, A-6	0	0	90-100	90-100	85-100	75-95	35-55	12-28
CgA:												
Carlisle--------	0-80	Muck	PT	A-8	0	0	0	0	0	0	---	---
CkA:												
Chenango--------	0-10	Gravelly loam	SM, GM, ML	A-1-b, A-2-4, A-4	0	0-10	55-85	55-85	30-85	15-75	15-35	NP-10
	10-29	Very gravelly sandy loam, gravelly sandy loam, very gravelly loam	GM, SM	A-1-b, A-2-4, A-4, A-1-a	0	0-10	35-80	30-75	20-70	10-55	15-40	NP-10
	29-80	Extremely gravelly sand, very gravelly loamy coarse sand, gravelly loamy sand	SP, GW, SW, GP, SP-SM, GW-GM	A-1-a, A-1-b	0	0-10	25-65	20-55	0-40	0-15	0-0	NP

Table 28.—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	
CkB:												
Chenango--------	0-11	Gravelly loam	GM, ML, SM	A-4, A-2-4, A-1-b	0	0-10	55-85	55-85	30-85	15-75	15-35	NP-10
	11-48	Very gravelly loam, very gravelly sandy loam, gravelly loam	SM, GM	A-1-b, A-2-4, A-4, A-1-a	0	0-10	35-80	30-75	20-70	10-55	15-40	NP-10
	48-80	Very gravelly loamy coarse sand, extremely gravelly sand, gravelly loamy sand	GP, SW, GW-GM, SP, SP-SM, GW	A-1-a, A-1-b	0	0-10	25-65	20-55	0-40	0-15	0-0	NP
CkC:												
Chenango--------	0-8	Gravelly loam	SM, GM, ML	A-1-b, A-2-4, A-4	0	0-10	55-85	55-85	30-85	15-75	15-35	NP-10
	8-31	Gravelly loam, very gravelly sandy loam	GM, SM	A-4, A-1-b, A-1-a, A-2-4	0	0-10	35-80	30-75	20-70	10-55	15-40	NP-10
	31-80	Extremely gravelly loamy sand, very gravelly coarse sand, gravelly loamy coarse sand	SP-SM, GW-GM, SW, GP, GW, SP	A-1-b, A-1-a	0	0-10	25-65	20-55	0-40	0-15	0-0	NP
CkD:												
Chenango--------	0-3	Gravelly loam	ML, GM, SM	A-1-b, A-4, A-2-4	0	0-10	55-85	55-85	30-85	15-75	15-35	NP-10
	3-26	Very gravelly loam, very gravelly sandy loam, gravelly sandy loam	SM, GM	A-1-a, A-1-b, A-2-4, A-4	0	0-10	35-80	30-75	20-70	10-55	15-40	NP-10
	26-80	Extremely gravelly loamy coarse sand, gravelly loamy coarse sand, very gravelly coarse sand	SW, GW-GM, SP, SP-SM, GP, GW	A-1-b, A-1-a	0	0-10	25-65	20-55	0-40	0-15	0-0	NP

Table 28.—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	
CoB:												
Colonie	0-11	Loamy fine sand	SM	A-2-4	0	0	100	90-100	70-100	10-55	0-0	NP
	11-46	Fine sand, loamy fine sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	90-100	70-100	0-55	0-0	NP
	46-80	Fine sand, loamy sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	90-100	10-100	0-50	0-0	NP
CoD:												
Colonie	0-10	Loamy fine sand	SM	A-2-4	0	0	100	90-100	70-100	10-55	0-0	NP
	10-48	Loamy fine sand, fine sand	SM, SP, SP-SM	A-3, A-2-4	0	0	100	90-100	70-100	0-55	0-0	NP
	48-80	Fine sand, loamy fine sand	SP-SM, SP, SM	A-3, A-2-4	0	0	100	90-100	10-100	0-50	0-0	NP
CpB:												
Colonie	0-11	Loamy fine sand	SM	A-2-4	0	0	100	90-100	70-100	10-55	0-0	NP
	11-46	Fine sand, loamy fine sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	90-100	70-100	0-55	0-0	NP
	46-80	Fine sand, loamy sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	90-100	10-100	0-50	0-0	NP
Urban Land	---	---	---	---	---	---	---	---	---	---	---	---
CtA:												
Conneaut	0-9	Silt loam	CL-ML, ML	A-4, A-6	0	0	100	95-100	85-100	65-90	25-40	5-11
	9-27	Silt loam, silty clay loam	CL-ML, CL	A-5, A-7, A-6, A-4	0	0	95-100	95-100	85-100	65-95	17-44	5-22
	27-52	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7, A-5	0	0-1	95-100	85-95	75-95	60-90	17-44	5-22
	52-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7, A-5	0	0-2	90-100	85-95	75-95	60-90	25-44	7-22

Table 28.—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	
CuA:												
Conneaut--------	0-9	Silt loam	ML, CL-ML	A-4, A-6	0	0	100	95-100	85-100	65-90	25-40	5-11
	9-27	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6, A-7, A-5	0	0	95-100	95-100	85-100	65-95	17-44	5-22
	27-52	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7, A-5	0	0-1	95-100	85-95	75-95	60-90	17-44	5-22
	52-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6, A-5, A-7	0	0-2	90-100	85-95	75-95	60-90	25-44	7-22
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---
DAM:												
Dam-------------	---	---	---	---	---	---	---	---	---	---	---	---
DeC:												
Darien----------	0-14	Silt loam	CL-ML, CL, ML	A-4, A-6	0	0	85-95	85-95	75-95	60-85	22-36	5-11
	14-32	Silty clay loam, clay loam, channery silt loam	SC, GC-GM, CL-ML, CL	A-4, A-6	0	0-5	55-95	55-95	50-95	40-90	25-35	5-15
	32-46	Silty clay loam, clay loam, channery silt loam	CL, CL-ML, GC-GM, SC	A-4, A-6, A-2-6, A-2-4	0	0-5	50-95	30-95	25-95	20-90	25-35	5-15
	46-80	Silty clay loam, clay loam, loam, silt loam, channery clay loam, very channery silt loam	CL-ML, SC, CL, GC-GM	A-4, A-6, A-2-4, A-2-6	0	5-10	40-95	30-85	25-85	20-75	25-35	5-15

Table 28.—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	
DeC:												
Platea----------	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-90	22-36	4-11
	9-18	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	90-100	80-100	65-95	22-40	6-20
	18-29	Silt loam, loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-5	70-98	70-98	65-98	65-95	22-40	6-20
	29-80	Silt loam, loam, silty clay loam	CL, CL-ML	A-2-4, A-4, A-6, A-2-6	0	0-5	50-90	50-90	45-90	30-85	22-40	6-20
DeC2:												
Darien----------	0-5	Silt loam	ML, CL-ML	A-4, A-6	0	0	85-95	85-95	75-95	60-85	22-36	5-11
	5-27	Silty clay loam, clay loam, channery silt loam	SC, CL, CL-ML, GC-GM	A-4, A-6	0	0-5	55-95	55-95	50-95	40-90	25-35	5-15
	27-41	Silty clay loam, clay loam, channery silt loam	CL, CL-ML, GC-GM, SC	A-2-4, A-2-6, A-6, A-4	0	0-5	60-95	30-95	25-95	20-90	25-35	5-15
	41-80	Channery silty clay loam, channery silt loam, loam, clay loam, very channery silt loam	GC-GM, CL, CL-ML, SC	A-2-6, A-6, A-2-4, A-4	0	5-10	40-95	30-85	25-85	20-75	25-35	5-15
Platea----------	0-9	Silt loam	ML, CL-ML, CL	A-6, A-4	0	0	95-100	95-100	85-100	60-90	22-36	4-11
	9-18	Silty clay loam, silt loam	CL-ML, CL	A-4, A-6	0	0	90-100	90-100	80-100	65-95	22-40	6-20
	18-29	Silt loam, loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0-5	70-98	70-98	65-98	65-95	22-40	6-20
	29-80	Silt loam, loam, silty clay loam	CL, CL-ML	A-4, A-2-4, A-2-6, A-6	0	0-5	50-90	50-90	45-90	30-85	22-40	6-20

Table 28.—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	
DhB:												
Darien----------	0-11	Silt loam	CL-ML, ML	A-6, A-4	0	0	85-95	85-95	75-95	60-85	22-36	5-11
	11-36	Silty clay loam, silt loam, channery clay loam	CL, CL-ML, GC-GM, SC	A-4, A-6	0	0-5	55-95	55-95	50-95	40-90	25-35	5-15
	36-47	Silt loam, channery clay loam, silty clay loam	CL, CL-ML, GC-GM, SC	A-4, A-6, A-2-6, A-2-4	0	0-5	60-95	30-95	25-95	20-90	25-35	5-15
	47-80	Silty clay loam, channery clay loam, very channery silt loam	CL, CL-ML, GC-GM, SC	A-2-6, A-4, A-6, A-2-4	0	5-10	40-95	30-85	25-85	20-75	25-35	5-15
Hornell---------	0-11	Silt loam	CL, CL-ML	A-6, A-4	0	0	95-100	85-100	75-100	60-95	22-36	5-15
	11-33	Silty clay loam, channery silty clay, silty clay	CH, CL, GC, MH	A-6, A-7-6	0	0-5	60-98	50-98	50-98	45-95	35-55	10-30
	33-35	Unweathered bedrock			---	---	---	---	---	---	---	---
EnB:												
Elnora----------	0-8	Loamy fine sand	ML, SM	A-2-4	0	0	100	98-100	70-100	10-55	0-0	NP
	8-21	Loamy fine sand, fine sand	SM	A-3, A-2-4	0	0	100	90-100	70-100	0-50	0-0	NP
	21-80	Fine sand, loamy fine sand	SM	A-3, A-2-4	0	0	100	90-100	70-100	0-50	0-0	NP
FcA:												
Fitchville------	0-7	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	20-35	4-11
	7-45	Silty clay loam, silt loam	ML, CL	A-5, A-4, A-6, A-7	0	0	100	100	90-100	70-95	28-50	5-23
	45-53	Silt loam, silty clay loam	CL, ML	A-6, A-7, A-4, A-5	0	0	100	98-100	90-100	70-95	28-50	5-23
	53-80	Silt loam, stratified silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	98-100	98-100	90-100	70-90	20-40	3-18

Table 28.—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	
FcB:												
Fitchville------	0-14	Silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-35	4-11
	14-51	Silty clay loam, silt loam	ML, CL	A-6, A-4, A-7, A-5	0	0	100	100	90-100	70-95	28-50	5-23
	51-64	Silt loam, silty clay loam	ML, CL	A-4, A-5, A-7, A-6	0	0	100	98-100	90-100	70-95	28-50	5-23
	64-80	Stratified silt loam to silty clay loam	CL-ML, CL, ML	A-4, A-6	0	0	98-100	98-100	90-100	70-90	20-40	3-18
GaF:												
Gageville-------	0-10	Silt loam	CL, CL-ML	A-4	0	0-5	85-100	85-95	70-95	50-85	20-35	3-11
	10-22	Silt loam, loam	CL, CL-ML	A-4	0	0-5	75-100	75-95	65-95	45-85	20-35	5-11
	22-56	Clay loam, silty clay loam	CL	A-6, A-4	0	0-5	75-100	75-95	70-95	55-90	25-40	3-18
	56-80	Clay loam, silty clay loam, loam, silt loam	CL, CL-ML	A-6, A-4	0	0-5	75-100	75-95	65-95	45-90	20-40	3-18
GfA:												
Glenford--------	0-10	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-90	20-35	4-11
	10-39	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-40	5-18
	39-54	Stratified silt loam to fine sand, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	70-95	20-40	3-18
	54-80	Stratified silt loam to fine sand, stratified silty clay loam to fine sandy loam	ML, CL, CL-ML	A-4, A-6	0	0	100	100	70-100	40-95	20-40	3-15

Table 28.—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	
GfB:												
Glenford--------	0-9	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-90	20-35	4-11
	9-32	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-95	25-40	5-18
	32-45	Stratified silt loam to fine sandy loam, silty clay loam	ML, CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-95	20-40	3-18
	45-80	Stratified silt loam to fine sandy loam to fine sand, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	70-100	40-95	20-40	3-15
GfC:												
Glenford--------	0-11	Silt loam	CL-ML, CL	A-4	0	0	100	100	90-100	70-90	20-35	4-11
	11-33	Silty clay loam, silt loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-95	25-40	5-18
	33-44	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0	100	100	90-100	70-95	20-40	3-18
	44-80	Stratified silty clay loam to silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	70-100	40-95	20-40	3-15
GfD:												
Glenford--------	0-12	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-35	4-11
	12-29	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-95	25-40	5-18
	29-39	Silt loam, silty clay loam	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-95	20-40	3-18
	39-80	Silt loam, stratified silt loam to fine sandy loam, silty clay loam	ML, CL, CL-ML	A-6, A-4	0	0	100	100	70-100	40-95	20-40	3-15

Table 28.—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	
HaA:												
Harbor----------	0-13	Fine sandy loam	CL-ML, SC-SM, SM	A-4, A-2-4	0	0	75-100	75-100	55-85	30-55	10-20	NP-5
	13-32	Fine sandy loam, loamy fine sand, sandy loam, loamy sand	CL-ML, SC-SM, SM	A-1-b, A-2-4, A-4	0	0	75-100	75-100	40-85	10-55	10-20	NP-5
	32-37	Fine sandy loam, sandy loam, loam, gravelly coarse sandy loam, channery loam	SM, GM, SC-SM, CL-ML	A-2-4, A-4, A-1-b	0	0-10	50-100	50-100	5-95	5-75	10-20	NP-5
	37-56	Silty clay loam, clay loam, loam, channery silt loam	CL, CL-ML	A-4, A-6, A-2-7, A-2-4	0	0-2	50-95	50-95	45-95	30-90	20-50	5-15
	56-80	Clay loam, channery silty clay loam, loam, silt loam	CL-ML, CL	A-2-7, A-2-4, A-6, A-4	0	0-2	50-95	50-95	45-95	30-90	20-50	5-15

Table 28.—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	
HaC:												
Harbor----------	0-9	Fine sandy loam	SC-SM, CL-ML, SM	A-2-4, A-4	0	0	75-100	75-100	55-85	30-55	10-20	NP-5
	9-26	Fine sandy loam, sandy loam, loamy fine sand, loamy sand	SM, SC-SM, CL-ML	A-4, A-2-4, A-1-b	0	0	75-100	75-100	40-85	10-55	10-20	NP-5
	26-34	Sandy loam, fine sandy loam, gravelly coarse sandy loam, channery loam	SM, GM, CL-ML, SC-SM	A-1-b, A-2-4, A-4	0	0-10	50-100	50-100	5-95	5-75	10-20	NP-5
	34-63	Silty clay loam, clay loam, loam, channery silt loam	CL, CL-ML	A-4, A-2-4, A-2-7, A-6	0	0-2	50-95	50-95	45-95	30-90	20-50	5-15
	63-80	Silt loam, clay loam, silty clay loam, channery loam	CL, CL-ML	A-4, A-6, A-2-7, A-2-4	0	0-2	50-95	50-95	45-95	30-90	20-50	5-15

Table 28.—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	
HbB:												
Harbor----------	0-13	Fine sandy loam	SM, CL-ML, SC-SM	A-2-4, A-4	0	0	75-100	75-100	55-85	30-55	10-20	NP-5
	13-32	Fine sandy loam, loamy fine sand, sandy loam, loamy sand	CL-ML, SC-SM, SM	A-2-4, A-4, A-1-b	0	0	75-100	75-100	40-85	10-55	10-20	NP-5
	32-37	Fine sandy loam, sandy loam, gravelly coarse sandy loam, channery loam	CL-ML, GM, SC-SM, SM	A-4, A-2-4, A-1-b	0	0-10	50-100	50-100	5-95	5-75	10-20	NP-5
	37-56	Silty clay loam, clay loam, loam, channery silt loam	CL-ML, CL	A-4, A-6, A-2-7, A-2-4	0	0-2	50-95	50-95	45-95	30-90	20-50	5-15
	56-80	Clay loam, channery silty clay loam, loam, silt loam	CL-ML, CL	A-6, A-4, A-2-4, A-2-7	0	0-2	50-95	50-95	45-95	30-90	20-50	5-15
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---
HmA:												
Holly-----------	0-7	Silt loam	ML	A-4	0	0	90-100	85-100	70-100	50-90	25-35	3-10
	7-33	Silt loam, loam, sandy loam	SM, ML	A-4	0	0	85-100	75-100	65-100	45-90	20-40	NP-10
	33-45	Sandy loam, gravelly silt loam, loam	SM, ML	A-1-b, A-4, A-2-4	0	0	85-100	65-95	40-95	20-85	20-40	NP-10
	45-68	Gravelly loamy sand, loam, stratified silt loam to loam to sandy loam, stratified loamy sand to gravelly sand	SM, ML, SP-SM	A-4, A-1-b, A-2-4, A-3	0	0-5	70-100	65-95	35-95	5-85	20-40	NP-10

Table 28.—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	
HoA:												
Hornell---------	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	85-100	75-100	60-95	22-36	5-15
	9-24	Silty clay, channery silty clay loam	CH, CL, GC, MH	A-7-6, A-6	0	0-5	60-98	50-98	50-98	45-95	35-55	10-30
	24-28	Channery silty clay, silty clay loam	CH, CL, GC, MH	A-2-7, A-6, A-7-6	0	0-5	30-80	25-75	20-75	20-70	35-55	10-30
	28-32	Weathered bedrock			---	---	---	---	---	---	---	---
HoB:												
Hornell---------	0-9	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	85-100	75-100	60-95	22-36	5-15
	9-31	Silty clay loam, silty clay, channery silty clay loam	CH, CL, GC, MH	A-6, A-7-6	0	0-5	60-98	50-98	50-98	45-95	35-55	10-30
	31-61	Weathered bedrock			---	---	---	---	---	---	---	---
	61-68	Unweathered bedrock			---	---	---	---	---	---	---	---
KfA:												
Kingsville------	0-8	Loamy fine sand	SM	A-2-4, A-3	0	0	90-100	90-100	45-100	5-55	0-0	NP
	8-30	Fine sand, stratified sand to loamy fine sand, loamy sand	SM, SP-SM	A-1-b, A-3	0	0	90-100	90-100	45-100	5-55	0-0	NP
	30-80	Stratified sand to loamy coarse sand, stratified sand to loamy fine sand, loamy sand, fine sand	SM, SP-SM, SW-SM	A-3, A-1-b	0	0	85-100	85-100	10-100	0-55	0-0	NP
La:												
Landfills-------	---	---	---	---	---	---	---	---	---	---	---	---

Table 28.—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	
MhA:												
Mill	0-11	Silt loam	CL, CL-ML	A-4, A-6	0	0-2	95-100	90-100	80-100	65-90	25-35	4-11
	11-19	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-2	85-100	85-100	75-100	60-95	25-40	5-20
	19-45	Silt loam, clay loam, loam, channery silty clay loam	CL	A-6, A-4	0	0-10	65-100	55-100	45-100	35-95	25-40	5-20
	45-80	Silt loam, loam, silty clay loam, channery clay loam	CL-ML, CL	A-6, A-4	0	0-10	55-95	55-90	45-90	35-85	20-40	4-20
MtA:												
Mitiwanga	0-11	Silt loam	ML, CL-ML	A-4	0	0-2	90-100	65-95	60-95	45-85	25-35	4-10
	11-30	Silt loam, channery loam, silty clay loam, clay loam	CL, CL-ML	A-4, A-6	0	0-4	55-100	55-95	50-95	40-90	20-40	3-18
	30-32	Unweathered bedrock			---	---	---	---	---	---	---	---
MtB:												
Mitiwanga	0-13	Silt loam	ML, CL-ML	A-4	0	0-2	90-100	65-95	60-95	45-85	25-35	4-10
	13-31	Silt loam, clay loam, silty clay loam, channery loam	CL-ML, CL	A-4, A-6	0	0-4	55-100	55-95	50-95	40-90	20-40	3-18
	31-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 28.—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	
OrA:												
Orrville	0-10	Silt loam	ML, CL-ML, CL	A-4	0	0	100	90-100	80-100	65-95	22-35	4-10
	10-36	Silt loam, loam, clay loam, sandy loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-2	95-100	75-100	65-100	45-90	20-40	2-16
	36-60	Fine sandy loam, stratified sandy loam to loamy sand, silt loam, gravelly loam	SC, SM, ML, CL	A-1-b, A-2-4, A-4	0	0-2	95-100	65-100	40-100	20-90	15-35	NP-10
OtA:												
Otego	0-9	Silt loam	ML, CL-ML	A-4	0	0	95-100	95-100	85-100	65-90	15-35	2-10
	9-28	Silt loam, stratified silt loam to fine sandy loam to loamy fine sand	CL-ML, ML	A-4	0	0	95-100	95-100	85-100	65-90	15-35	2-10
	28-80	Silt loam, stratified silt loam to fine sandy loam to loamy fine sand	ML, CL-ML	A-4	0	0	80-100	70-100	65-100	50-90	15-35	2-10

Table 28.—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	
OuC:												
Otisville-------	0-12	Gravelly sandy loam	GM, GP, SM	A-1-b, A-2-4	0	0-5	50-90	45-90	30-85	1-70	0-0	NP
	12-34	Very gravelly loamy sand, extremely gravelly sand, gravelly coarse sand	GP, GP-GM, SP-SM, SP	A-1-a, A-3	0	0-10	45-70	15-70	0-55	0-20	0-0	NP
	34-80	Gravelly sand, very gravelly loamy sand, very gravelly coarse sand, extremely gravelly loamy coarse sand	GP, GP-GM, SP, SP-SM	A-1-a	0	0-10	35-60	20-55	0-50	0-15	0-0	NP
PaA:												
Painesville-----	0-9	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-4, A-2-4	0	0	90-100	90-100	65-85	30-55	0-25	NP-5
	9-30	Fine sandy loam, loamy fine sand, channery fine sandy loam, sandy loam, loam	SM, CL, SC, CL-ML	A-4, A-1-b, A-2-4	0	0-15	70-100	70-100	35-100	10-75	10-30	NP-10
	30-51	Silt loam, silty clay loam, stratified silt loam to fine sandy loam to loam	CL, CL-ML	A-4, A-6	0	0-10	75-95	75-95	70-95	55-90	22-40	4-15
	51-80	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-10	75-95	75-95	70-95	55-90	22-40	4-15

Table 28.—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	
PbA:												
Painesville-----	0-9	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	90-100	90-100	65-85	30-55	0-25	NP-5
	9-30	Fine sandy loam, loamy fine sand, channery fine sandy loam, sandy loam, loam	CL, CL-ML, SC, SM	A-1-b, A-2-4, A-4	0	0-15	70-100	70-100	35-100	10-75	10-30	NP-10
	30-51	Silt loam, silty clay loam, stratified silt loam to fine sandy loam to loam	CL, CL-ML	A-4, A-6	0	0-10	75-95	75-95	70-95	55-90	22-40	4-15
	51-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0-10	75-95	75-95	70-95	55-90	22-40	4-15
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---
PeC2:												
Pierpont--------	0-8	Silt loam	CL, CL-ML	A-4	0	0-3	95-100	90-100	80-100	65-90	17-40	4-10
	8-24	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0-3	95-100	95-100	85-100	60-95	26-40	6-18
	24-40	Silty clay loam, clay loam	CL	A-6, A-4	0	0-3	95-100	75-95	65-95	55-90	32-40	8-20
	40-72	Silty clay loam, silt loam, loam, clay loam	CL, CL-ML, ML	A-4, A-6	0	0-3	95-100	75-95	65-95	40-90	20-40	3-20

Table 28.—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	
PeD:												
Pierpont--------	0-9	Silt loam	CL, CL-ML	A-4	0	0-3	95-100	90-100	80-100	65-90	17-40	4-10
	9-25	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-3	95-100	95-100	85-100	60-95	26-40	6-18
	25-40	Silty clay loam, clay loam	CL	A-4, A-6	0	0-3	95-100	75-95	65-95	55-90	32-40	8-20
	40-80	Silt loam, loam, silty clay loam, clay loam	CL, CL-ML, ML	A-4, A-6	0	0-3	95-100	75-95	65-95	40-90	20-40	3-20
Pg:												
Pits, Gravel----	0-80	Extremely gravelly coarse sand, very gravelly coarse sand, extremely gravelly sand		A-1-a	0	0-25	10-55	5-50	0-15	0-5	0-14	---
Pk:												
Pits, Quarries--	---	---	---	---	---	---	---	---	---	---	---	---
PrA:												
Platea----------	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	85-100	60-90	22-36	4-11
	9-21	Silty clay loam, silt loam	CL-ML, CL	A-6, A-4	0	0	90-100	90-100	80-100	65-95	22-40	6-20
	21-61	Silt loam, channery silt loam, loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-5	70-98	70-98	65-98	65-95	22-40	6-20
	61-80	Silt loam, channery silt loam, loam, silty clay loam	CL, CL-ML	A-4, A-6, A-2-6, A-2-4	0	0-5	50-90	50-90	45-90	30-85	22-40	6-20

Table 28.—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	
PrA:												
Darien----------	0-11	Silt loam	CL-ML, ML	A-4, A-6	0	0	85-95	85-95	75-95	60-85	22-36	5-11
	11-45	Silty clay loam, clay loam, channery silt loam	SC, GC-GM, CL-ML, CL	A-4, A-6	0	0-5	55-95	55-95	50-95	40-90	25-35	5-15
	45-69	Very channery silt loam, clay loam, silty clay loam	GC-GM, SC, CL-ML, CL	A-2-6, A-6, A-2-4, A-4	0	0-5	60-95	30-95	25-95	20-90	25-35	5-15
	69-80	Channery silt loam, clay loam, loam	GC-GM, SC, CL, CL-ML	A-2-4, A-6, A-4, A-2-6	0	5-10	40-95	30-85	25-85	20-75	25-35	5-15
PrB:												
Platea----------	0-9	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	95-100	95-100	85-100	60-90	22-36	4-11
	9-16	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	90-100	80-100	65-95	22-40	6-20
	16-45	Silt loam, channery loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0-5	70-98	70-98	65-98	65-95	22-40	6-20
	45-80	Silt loam, channery loam, silty clay loam	CL, CL-ML	A-2-4, A-4, A-6, A-2-6	0	0-5	50-90	50-90	45-90	30-85	22-40	6-20
Darien----------	0-13	Silt loam	CL-ML, ML	A-6, A-4	0	0	85-95	85-95	75-95	60-85	22-36	5-11
	13-33	Clay loam, channery silt loam, silty clay loam	CL, GC-GM, CL-ML, SC	A-6, A-4	0	0-5	55-95	55-95	50-95	40-90	25-35	5-15
	33-49	Silt loam, channery clay loam, silty clay loam	SC, CL-ML, CL, GC-GM	A-2-4, A-2-6, A-6, A-4	0	0-5	60-95	30-95	25-95	20-90	25-35	5-15
	49-80	Channery loam, channery silt loam, clay loam, silty clay loam	SC, CL-ML, CL, GC-GM	A-2-4, A-6, A-2-6, A-4	0	5-10	40-95	30-85	25-85	20-75	25-35	5-15

Table 28.—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	
PrB2:												
Platea----------	0-9	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	95-100	95-100	85-100	60-90	22-36	4-11
	9-16	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	90-100	90-100	80-100	65-95	22-40	6-20
	16-45	Silt loam, channery loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0-5	70-98	70-98	65-98	65-95	22-40	6-20
	45-80	Silt loam, channery loam, silty clay loam	CL-ML, CL	A-4, A-6, A-2-6, A-2-4	0	0-5	50-90	50-90	45-90	30-85	22-40	6-20
Darien----------	0-4	Silt loam	CL-ML, ML	A-4, A-6	0	0	85-95	85-95	75-95	60-85	22-36	5-11
	4-29	Silty clay loam, clay loam, channery silt loam	GC-GM, SC, CL-ML, CL	A-6, A-4	0	0-5	55-95	55-95	50-95	40-90	25-35	5-15
	29-44	Silty clay loam, clay loam, channery silt loam	CL, GC-GM, SC, CL-ML	A-4, A-6, A-2-6, A-2-4	0	0-5	60-95	30-95	25-95	20-90	25-35	5-15
	44-80	Channery silty clay loam, channery clay loam, very channery silt loam	CL, CL-ML, GC-GM, SC	A-2-6, A-2-4, A-6, A-4	0	5-10	40-95	30-85	25-85	20-75	25-35	5-15
PtB:												
Platea----------	0-9	Silt loam	CL, CL-ML, ML	A-6, A-4	0	0	95-100	95-100	85-100	60-90	22-36	4-11
	9-16	Silty clay loam, silt loam	CL-ML, CL	A-6, A-4	0	0	90-100	90-100	80-100	65-95	22-40	6-20
	16-45	Silt loam, channery loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0-5	70-98	70-98	65-98	65-95	22-40	6-20
	45-80	Silt loam, channery loam, silty clay loam	CL, CL-ML	A-2-4, A-2-6, A-4, A-6	0	0-5	50-90	50-90	45-90	30-85	22-40	6-20
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---

Table 28.—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	
PtC:												
Platea----------	0-9	Silt loam	CL, ML, CL-ML	A-4, A-6	0	0	95-100	95-100	85-100	60-90	22-36	4-11
	9-18	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	90-100	90-100	80-100	65-95	22-40	6-20
	18-29	Silt loam, channery loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0-5	70-98	70-98	65-98	65-95	22-40	6-20
	29-80	Silt loam, channery loam, silty clay loam	CL-ML, CL	A-2-4, A-2-6, A-6, A-4	0	0-5	50-90	50-90	45-90	30-85	22-40	6-20
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---
RhA:												
Red Hook--------	0-9	Silt loam	CL-ML, ML, SC-SM	A-4	0	0-5	85-100	85-90	75-90	50-80	15-40	1-10
	9-31	Fine sandy loam, gravelly sandy loam, loam, very gravelly silt loam	GM, ML, SC-SM, SM	A-4, A-2-4, A-1-b	0	0-5	45-90	45-85	30-85	15-75	15-30	1-10
	31-80	Loam, stratified sand to very gravelly sand, very gravelly sandy loam	SM, SC-SM, CL-ML, GM	A-1-b, A-2-4, A-4	0	0-10	30-85	25-85	15-85	10-75	15-30	1-10

Table 28.—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	
RhB:												
Red Hook--------	0-10	Silt loam	SC-SM, ML, CL-ML	A-4	0	0-5	80-100	80-90	75-90	50-80	15-40	1-10
	10-34	Gravelly loam, loam, sandy loam, very gravelly silt loam	SC-SM, CL-ML, GM, SM	A-4, A-2-4, A-1-b	0	0-5	45-90	45-85	30-85	15-75	15-30	1-10
	34-80	Gravelly coarse sandy loam, very gravelly coarse sandy loam, gravelly loamy coarse sand, loam, silt loam	ML, SC-SM, SM, GM	A-1-b, A-2-4, A-4	0	5-10	30-85	25-85	15-85	10-75	15-30	1-10
Rw:												
Riverwash--------	---	---	---	---	---	---	---	---	---	---	---	---
SbA:												
Sebring---------	0-8	Silt loam	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	20-35	3-12
	8-29	Silt loam, silty clay loam	ML, CL	A-6, A-7, A-5, A-4	0	0	100	95-100	85-100	65-95	30-50	7-22
	29-50	Silty clay loam, silt loam	ML, CL	A-6, A-7, A-4, A-5	0	0	100	85-100	75-100	60-95	30-50	7-22
	50-80	Stratified silty clay loam to very fine sand, silt loam	CL, ML, CL-ML	A-4, A-5, A-7, A-6	0	0	90-100	85-100	75-100	60-95	20-45	3-20
StA:												
Stanhope--------	0-5	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-32	NP-10
	5-40	Silt loam, silty clay loam	ML, CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	22-40	3-20
	40-80	Stratified silt loam to silty clay loam, silty clay loam	CL-ML, ML, CL	A-4, A-6	0	0	70-100	70-100	65-100	50-95	22-40	3-20

Table 28.—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	
ToC:												
Towerville------	0-5	Silt loam	CL-ML, CL	A-4	0	0-5	80-98	75-98	70-98	55-90	15-35	5-11
	5-14	Silt loam, silty clay loam, channery silty clay loam	CL, CL-ML, SC, GC	A-6, A-4	0	0-15	70-98	65-98	60-98	45-95	25-40	5-20
	14-34	Silty clay loam, channery silt loam	GC, CL-ML, CL, SC	A-6, A-4	0	0-15	65-95	45-85	40-85	35-80	25-40	5-20
	34-40	Weathered bedrock			---	---	---	---	---	---	---	---
ToD:												
Towerville------	0-5	Silt loam	CL-ML, CL	A-4	0	0-5	80-100	75-98	70-98	55-90	15-35	5-11
	5-22	Silt loam, silty clay loam, channery silty clay loam	GC, CL, SC, CL-ML	A-4, A-6	0	0-15	70-98	65-98	60-98	45-95	25-40	5-20
	22-32	Silty clay loam, channery silty clay loam, very channery silt loam	CL, CL-ML, GC, SC	A-4, A-6	0	0-15	65-95	45-85	40-85	35-80	25-40	5-20
	32-35	Weathered bedrock			---	---	---	---	---	---	---	---
TyB:												
Tyner-----------	0-12	Loamy sand	SM	A-1-b, A-2-4	0	0	90-100	85-100	45-100	15-35	0-0	NP
	12-36	Loamy sand, stratified sand to loamy sand, loamy fine sand, coarse sand, fine sand	SP-SM, SM	A-1-b, A-3	0	0	90-100	85-100	0-100	0-35	0-0	NP
	36-80	Stratified sand to fine sand to loamy sand, stratified coarse sand	SM, SP-SM	A-3, A-1-b	0	0-2	95-100	95-100	0-100	0-35	0-0	NP

Table 28.—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	
TyB:												
Otisville-------	0-10	Very gravelly sandy loam	GP, SM, GM	A-2-4, A-1-b	0	0-5	50-90	45-90	30-85	1-70	0-0	NP
	10-13	Very gravelly sandy loam, gravelly coarse sandy loam, very gravelly loamy sand	GM, SM	A-1-a, A-1-b	0	0-10	25-80	25-70	1-50	1-30	0-0	NP
	13-35	Extremely gravelly loamy coarse sand, very gravelly loamy coarse sand, gravelly coarse sand	GP-GM, GP, SP-SM, SP	A-3, A-1-a	0	0-10	45-70	15-70	0-55	0-20	0-0	NP
	35-80	Very gravelly sand, extremely gravelly coarse sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1-a	0	0-10	35-60	20-55	0-50	0-15	0-0	NP
Ud:												
Udorthents------	---	---	---	---	---	---	---	---	---	---	---	---
Un:												
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---
UrB:												
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---
Elnora----------	0-8	Loamy fine sand	SM, ML	A-2-4	0	0	100	98-100	70-100	10-55	0-0	NP
	8-21	Loamy fine sand, fine sand	SM	A-3, A-2-4	0	0	100	90-100	70-100	0-50	0-0	NP
	21-80	Fine sand, loamy fine sand	SM	A-2-4, A-3	0	0	100	90-100	70-100	0-50	0-0	NP
UtB:												
Urban Land------	---	---	---	---	---	---	---	---	---	---	---	---

Table 28.—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	
UtB:												
Tyner----------	0-12	Loamy sand	SM	A-1-b	0	0	90-100	85-100	45-100	15-35	0-0	NP
	12-36	Loamy sand, stratified sand to loamy sand, loamy fine sand, coarse sand, fine sand	SM, SP-SM	A-3, A-1-b	0	0	90-100	85-100	0-100	0-35	0-0	NP
	36-80	Stratified sand to fine sand to loamy sand, stratified coarse sand	SM, SP-SM	A-1-b, A-3	0	0-2	95-100	95-100	0-100	0-35	0-0	NP
Otisville-------	0-10	Very gravelly sandy loam	SM, GP, GM	A-1-b, A-2-4	0	0-5	50-90	45-90	30-85	1-70	0-0	NP
	10-13	Very gravelly sandy loam, gravelly coarse sandy loam, very gravelly loamy sand	GM, SM	A-1-a, A-1-b	0	0-10	25-80	25-70	1-50	1-30	0-0	NP
	13-35	Extremely gravelly loamy coarse sand, very gravelly loamy coarse sand, gravelly coarse sand	GP-GM, GP, SP-SM, SP	A-1-a, A-3	0	0-10	45-70	15-70	0-55	0-20	0-0	NP
	35-80	Very gravelly sand, extremely gravelly coarse sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1-a	0	0-10	35-60	20-55	0-50	0-15	0-0	NP

Table 28.—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	
VeA:												
Venango	0-9	Silt loam	CL, CL-ML, ML	A-4	0	0	85-100	85-95	75-95	60-85	22-35	4-10
	9-21	Silt loam, loam, channery clay loam	CL, SC, CL-ML	A-6, A-4	0	0-5	65-95	65-95	55-95	40-85	25-40	5-15
	21-46	Loam, silt loam	CL-ML, ML, CL	A-4, A-6	0	0-10	80-95	80-95	70-95	50-85	20-35	3-11
	46-80	Loam, silt loam, channery loam	CL, ML, CL-ML	A-4, A-6	0	0-10	75-95	75-85	65-85	45-75	20-35	3-11
VeB:												
Venango	0-10	Silt loam	CL, CL-ML, ML	A-4	0	0	85-100	85-95	75-95	60-85	22-35	4-10
	10-22	Silt loam, loam, channery clay loam	CL, CL-ML, SC	A-6, A-4	0	0-5	65-95	65-95	55-95	40-85	25-40	5-15
	22-38	Silt loam, loam	CL, ML, CL-ML	A-6, A-4	0	0-10	80-95	80-95	70-95	50-85	20-35	3-11
	38-80	Silt loam, loam, channery loam	CL, CL-ML, ML	A-4, A-6	0	0-10	75-95	75-85	65-85	45-75	20-35	3-11
W:												
Water	---	---	---	---	---	---	---	---	---	---	---	---

Table 28.—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	
WcA:												
Wick----------	0-8	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-95	25-35	4-20
	8-36	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-40	5-20
	36-50	Silt loam, silty clay loam, silty clay	CH, CL	A-5, A-7, A-6, A-4	0	0	95-100	95-100	85-100	60-95	25-55	7-30
	50-53	Sandy loam, stratified gravelly loam to fine sandy loam to loamy sand	SC-SM, CL-ML, CL, SM	A-1-b, A-2-4, A-4	0	0	65-100	65-100	35-95	10-75	10-30	NP-10
	53-80	Stratified silty clay loam to fine sandy loam, silt loam, stratified silty clay loam to silty clay	CL, CH	A-7-6, A-6, A-4, A-5	0	0	95-100	95-100	85-100	65-95	25-55	7-30
WeA:												
Willette--------	0-22	Muck	PT	A-8	0	0	0	0	0	0	---	---
	22-80	Silty clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	95-100	85-95	45-65	25-40

Table 29.—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	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
Be:										
Beaches	---	---	---	---	---	---	---	---	-	---
BkA:										
Blakeslee	0-10	10-25	1.30-1.50	0.60-2.00	0.16-0.20	Low	.32	.32	4	6
	10-38	15-30	1.25-1.60	0.60-6.00	0.08-0.20	Low	.24	.43		
	38-80	5-27	1.20-1.50	6.00-20.00	0.02-0.08	Low	.17	.64		
BkB:										
Blakeslee	0-5	10-25	1.30-1.50	0.60-2.00	0.16-0.20	Low	.32	.32	4	6
	5-26	15-30	1.25-1.60	0.60-6.00	0.08-0.20	Low	.24	.43		
	26-39	5-27	1.20-1.50	6.00-20.00	0.02-0.08	Low	.17	.64		
	39-80	5-27	1.20-1.50	6.00-20.00	0.02-0.08	Low	.17	.64		
BkC:										
Blakeslee	0-10	10-25	1.30-1.50	0.60-2.00	0.16-0.20	Low	.32	.32	4	6
	10-27	15-30	1.25-1.60	0.60-6.00	0.08-0.20	Low	.24	.43		
	27-35	5-27	1.20-1.50	6.00-20.00	0.02-0.08	Low	.17	.64		
	35-80	5-27	1.20-1.50	6.00-20.00	0.02-0.08	Low	.17	.64		
CaB:										
Cambridge	0-2	8-18	1.20-1.40	0.60-2.00	0.18-0.22	Low	.43	.43	4	5
	2-25	10-18	1.25-1.60	0.60-2.00	0.16-0.18	Low	.43	.64		
	25-51	16-30	1.60-1.80	0.01-0.20	0.06-0.09	Low	.43	.64		
	51-72	15-26	1.50-1.80	0.06-0.60	0.08-0.12	Low	.43	.64		
CaC:										
Cambridge	0-10	8-18	1.20-1.40	0.60-2.00	0.18-0.22	Low	.43	.43	4	5
	10-21	10-18	1.25-1.60	0.60-2.00	0.16-0.18	Low	.43	.64		
	21-36	16-30	1.60-1.80	0.01-0.20	0.06-0.09	Low	.43	.64		
	36-80	15-26	1.50-1.80	0.06-0.60	0.08-0.12	Low	.43	.64		
CaD:										
Cambridge	0-10	8-18	1.20-1.40	0.60-2.00	0.18-0.22	Low	.43	.43	4	5
	10-25	10-18	1.25-1.60	0.60-2.00	0.16-0.18	Low	.43	.64		
	25-37	16-30	1.60-1.80	0.01-0.20	0.06-0.09	Low	.43	.64		
	37-80	15-26	1.50-1.80	0.06-0.60	0.08-0.12	Low	.43	.64		
CcA:										
Canadice	0-9	20-35	1.35-1.55	0.20-2.00	0.17-0.21	Moderate	.49	.49	2	6
	9-45	35-60	1.40-1.75	0.01-0.06	0.12-0.17	Moderate	.28	.28		
	45-80	18-60	1.40-1.50	0.01-0.06	0.13-0.17	Moderate	.28	.28		
CdA:										
Caneadea	0-12	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Moderate	.43	.43	4	6
	12-52	35-60	1.35-1.70	0.01-0.06	0.10-0.13	High	.32	.32		
	52-80	35-55	1.45-1.75	0.01-0.06	0.10-0.14	High	.32	.32		
CdB:										
Caneadea	0-4	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Moderate	.43	.43	4	6
	4-60	35-60	1.35-1.70	0.01-0.06	0.10-0.13	High	.32	.32		
	60-80	18-55	1.45-1.75	0.01-0.06	0.10-0.14	High	.32	.32		
CeA:										
Caneadea	0-10	20-27	1.30-1.50	0.60-2.00	0.22-0.24	Moderate	.43	.43	4	6
	10-51	35-60	1.35-1.70	0.01-0.06	0.10-0.13	High	.32	.32		
	51-80	18-55	1.45-1.75	0.01-0.06	0.10-0.14	High	.32	.32		

Table 29.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
CeA:										
Canadice	0-10	20-35	1.35-1.55	0.20-2.00	0.17-0.21	Moderate	.49	.49	2	6
	10-35	35-60	1.40-1.75	0.01-0.06	0.12-0.17	Moderate	.28	.28		
	35-80	18-60	1.40-1.50	0.01-0.06	0.13-0.17	Moderate	.28	.28		
CfC2:										
Cardinal	0-5	15-25	1.35-1.50	0.60-2.00	0.21-0.24	Low	.37	.37	4	6
	5-18	25-40	1.40-1.60	0.20-0.60	0.18-0.22	Moderate	.43	.43		
	18-57	35-60	1.45-1.65	0.06-0.20	0.10-0.14	High	.32	.32		
	57-80	30-50	1.55-1.75	0.06-0.20	0.06-0.10	High	.32	.32		
CfD2:										
Cardinal	0-12	15-25	1.35-1.50	0.60-2.00	0.21-0.24	Low	.37	.37	4	6
	12-17	25-40	1.40-1.60	0.20-0.60	0.18-0.22	Moderate	.43	.43		
	17-58	35-60	1.45-1.65	0.06-0.20	0.10-0.14	High	.32	.32		
	58-80	30-50	1.55-1.75	0.06-0.20	0.06-0.10	High	.32	.32		
CfF:										
Cardinal	0-13	15-25	1.35-1.50	0.60-2.00	0.21-0.24	Low	.37	.37	4	6
	13-22	25-40	1.40-1.60	0.20-0.60	0.18-0.22	Moderate	.43	.43		
	22-43	35-60	1.45-1.65	0.06-0.20	0.10-0.14	High	.32	.32		
	43-80	30-50	1.55-1.75	0.06-0.20	0.06-0.10	High	.32	.32		
CgA:										
Carlisle	0-80	0-0	0.13-0.23	0.20-6.00	0.35-0.45	---	---	---	3	2
CkA:										
Chenango	0-10	6-18	1.20-1.50	0.60-6.00	0.08-0.16	Low	.24	.43	4	5
	10-29	6-18	1.25-1.55	0.60-6.00	0.07-0.15	Low	.17	.43		
	29-80	1-8	1.45-1.65	6.00-20.00	0.01-0.05	Low	.17	.64		
CkB:										
Chenango	0-11	6-18	1.20-1.50	0.60-6.00	0.08-0.16	Low	.24	.43	4	5
	11-48	6-18	1.25-1.55	0.60-6.00	0.07-0.15	Low	.17	.43		
	48-80	1-8	1.45-1.65	6.00-20.00	0.01-0.05	Low	.17	.64		
CkC:										
Chenango	0-8	6-18	1.20-1.50	0.60-6.00	0.08-0.16	Low	.24	.43	4	5
	8-31	6-18	1.25-1.55	0.60-6.00	0.07-0.15	Low	.17	.43		
	31-80	1-8	1.45-1.65	6.00-20.00	0.01-0.05	Low	.17	.64		
CkD:										
Chenango	0-3	6-18	1.20-1.50	0.60-6.00	0.08-0.16	Low	.24	.43	4	5
	3-26	6-18	1.25-1.55	0.60-6.00	0.07-0.15	Low	.17	.43		
	26-80	1-8	1.45-1.65	6.00-20.00	0.01-0.05	Low	.17	.64		
CoB:										
Colonie	0-11	1-2	1.20-1.50	2.00-20.00	0.09-0.10	Low	.17	.17	5	2
	11-46	1-2	1.20-1.50	2.00-20.00	0.06-0.08	Low	.17	.17		
	46-80	1-2	1.45-1.65	2.00-20.00	0.04-0.07	Low	.17	.17		
CoD:										
Colonie	0-10	1-2	1.20-1.50	2.00-20.00	0.09-0.10	Low	.17	.17	5	2
	10-48	1-2	1.20-1.50	2.00-20.00	0.06-0.08	Low	.17	.17		
	48-80	1-2	1.45-1.65	2.00-20.00	0.04-0.07	Low	.17	.17		
CpB:										
Colonie	0-11	1-2	1.20-1.50	2.00-20.00	0.09-0.10	Low	.17	.17	5	2
	11-46	1-2	1.20-1.50	2.00-20.00	0.06-0.08	Low	.17	.17		
	46-80	1-2	1.45-1.65	2.00-20.00	0.04-0.07	Low	.17	.17		
Urban land	---	---	---	---	---	---	---	---	-	---

Table 29.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
CtA:										
Conneaut	0-9	15-27	1.30-1.50	0.60-2.00	0.16-0.20	Low	.37	.37	4	6
	9-27	20-35	1.40-1.70	0.20-0.60	0.15-0.19	Moderate	.37	.37		
	27-52	20-35	1.40-1.70	0.06-0.20	0.15-0.19	Low	.37	.37		
	52-80	15-35	1.60-1.80	0.06-0.20	0.12-0.16	Low	.37	.43		
CuA:										
Conneaut	0-9	15-27	1.30-1.50	0.60-2.00	0.16-0.20	Low	.37	.37	4	6
	9-27	20-35	1.40-1.70	0.20-0.60	0.15-0.19	Moderate	.37	.37		
	27-52	20-35	1.40-1.70	0.06-0.20	0.15-0.19	Low	.37	.37		
	52-80	15-35	1.60-1.80	0.06-0.20	0.12-0.16	Low	.37	.43		
Urban land	---	---	---	---	---	---	---	---	-	---
DAM:										
Dam	---	---	---	---	---	---	---	---	-	---
DeC:										
Darien	0-14	15-27	1.10-1.40	0.60-2.00	0.15-0.20	Low	.37	.37	5	6
	14-32	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Moderate	.24	.37		
	32-46	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Low	.24	.37		
	46-80	20-35	1.50-1.85	0.06-0.20	0.05-0.14	Low	.24	.49		
Platea	0-9	15-27	1.30-1.50	0.60-2.00	0.20-0.24	Low	.43	.43	3	6
	9-18	20-34	1.45-1.70	0.20-0.60	0.16-0.21	Low	.32	.49		
	18-29	20-35	1.60-1.90	0.01-0.06	0.08-0.12	Low	.43	.55		
	29-80	20-32	1.55-1.85	0.06-0.60	0.10-0.14	Low	.43	.55		
DeC2:										
Darien	0-5	15-27	1.10-1.40	0.60-2.00	0.15-0.20	Low	.37	.37	5	6
	5-27	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Moderate	.24	.37		
	27-41	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Low	.24	.37		
	41-80	20-35	1.50-1.85	0.06-0.20	0.05-0.14	Low	.24	.49		
Platea	0-9	15-27	1.30-1.50	0.60-2.00	0.20-0.24	Low	.43	.43	3	6
	9-18	20-34	1.45-1.70	0.20-0.60	0.16-0.21	Low	.32	.49		
	18-29	20-35	1.60-1.90	0.01-0.06	0.08-0.12	Low	.43	.55		
	29-80	20-32	1.55-1.85	0.06-0.60	0.10-0.14	Low	.43	.55		
DhB:										
Darien	0-11	15-27	1.10-1.40	0.60-2.00	0.15-0.20	Low	.37	.37	5	6
	11-36	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Moderate	.24	.37		
	36-47	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Low	.24	.37		
	47-80	20-35	1.50-1.85	0.06-0.20	0.05-0.14	Low	.24	.49		
Hornell	0-11	18-27	1.10-1.40	0.60-2.00	0.16-0.21	Low	.43	.43	3	6
	11-33	35-60	1.20-1.50	0.01-0.20	0.11-0.13	Moderate	.28	.32		
	33-35	---	---	0.00-0.20	---	---	---	---		
EnB:										
Elnora	0-8	2-10	1.20-1.50	2.00-6.00	0.08-0.16	Low	.17	.17	5	2
	8-21	2-5	1.20-1.50	6.00-20.00	0.06-0.08	Low	.17	.17		
	21-80	2-5	1.45-1.65	6.00-20.00	0.03-0.06	Low	.17	.17		
FcA:										
Fitchville	0-7	16-27	1.30-1.45	0.60-2.00	0.17-0.21	Low	.37	.37	5	6
	7-45	20-35	1.45-1.70	0.20-0.60	0.15-0.19	Moderate	.37	.37		
	45-53	16-35	1.40-1.65	0.20-2.00	0.15-0.19	Moderate	.37	.37		
	53-80	16-30	1.40-1.65	0.20-2.00	0.14-0.18	Low	.37	.37		

Table 29.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
FcB:										
Fitchville------	0-14	16-27	1.30-1.45	0.60-2.00	0.17-0.21	Low	.37	.37	5	6
	14-51	20-35	1.45-1.70	0.20-0.60	0.15-0.19	Moderate	.37	.37		
	51-64	16-35	1.40-1.65	0.20-2.00	0.15-0.19	Moderate	.37	.37		
	64-80	16-30	1.40-1.65	0.20-2.00	0.14-0.18	Low	.37	.37		
GaF:										
Gageville-------	0-10	10-20	1.25-1.45	0.60-2.00	0.18-0.24	Low	.37	.43	4	5
	10-22	18-26	1.45-1.65	0.20-0.60	0.15-0.20	Moderate	.37	.43		
	22-56	22-35	1.45-1.70	0.20-0.60	0.13-0.19	Moderate	.37	.49		
	56-80	18-30	1.50-1.85	0.06-0.20	0.08-0.12	Low	.37	.49		
GfA:										
Glenford--------	0-10	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	.37	.37	5	6
	10-39	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	.43	.43		
	39-54	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	.43	.43		
	54-80	15-35	1.40-1.60	0.20-0.60	0.12-0.17	Low	.32	.37		
GfB:										
Glenford--------	0-9	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	.37	.37	5	6
	9-32	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	.43	.43		
	32-45	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	.43	.43		
	45-80	15-35	1.40-1.60	0.20-0.60	0.12-0.17	Low	.32	.37		
GfC:										
Glenford--------	0-11	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	.37	.37	5	6
	11-33	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	.43	.43		
	33-44	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	.43	.43		
	44-80	15-35	1.40-1.60	0.20-0.60	0.12-0.17	Low	.32	.37		
GfD:										
Glenford--------	0-12	15-27	1.30-1.45	0.60-2.00	0.16-0.20	Low	.37	.37	5	6
	12-29	18-35	1.45-1.65	0.20-2.00	0.14-0.18	Moderate	.43	.43		
	29-39	18-35	1.45-1.65	0.20-0.60	0.13-0.17	Low	.43	.43		
	39-80	15-35	1.40-1.60	0.20-0.60	0.12-0.17	Low	.32	.37		
HaA:										
Harbor----------	0-13	4-14	1.40-1.60	2.00-6.00	0.09-0.17	Low	.24	.24	3	3
	13-32	2-14	1.20-1.50	2.00-20.00	0.06-0.12	Low	.20	.24		
	32-37	7-17	1.30-1.60	2.00-6.00	0.06-0.17	Low	.24	.37		
	37-56	15-35	1.50-1.75	0.06-0.60	0.11-0.18	Moderate	.43	.49		
	56-80	15-35	1.50-1.85	0.06-0.20	0.11-0.18	Moderate	.43	.49		
HaC:										
Harbor----------	0-9	4-14	1.40-1.60	2.00-6.00	0.09-0.17	Low	.24	.24	3	3
	9-26	2-14	1.20-1.50	2.00-20.00	0.06-0.12	Low	.20	.24		
	26-34	7-17	1.30-1.60	2.00-6.00	0.06-0.17	Low	.24	.37		
	34-63	15-35	1.50-1.75	0.06-0.60	0.11-0.18	Moderate	.43	.49		
	63-80	15-35	1.50-1.85	0.06-0.20	0.11-0.18	Moderate	.43	.49		
HbB:										
Harbor----------	0-13	4-14	1.40-1.60	2.00-6.00	0.09-0.17	Low	.24	.24	3	3
	13-32	2-14	1.20-1.50	2.00-20.00	0.06-0.12	Low	.20	.24		
	32-37	7-17	1.30-1.60	2.00-6.00	0.06-0.17	Low	.24	.37		
	37-56	15-35	1.50-1.75	0.06-0.60	0.11-0.18	Moderate	.43	.49		
	56-80	15-35	1.50-1.85	0.06-0.20	0.11-0.18	Moderate	.43	.49		
Urban land------	---	---	---	---	---	---	---	---	-	---

Table 29.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
HmA:										
Holly	0-7	15-27	1.20-1.40	0.60-2.00	0.20-0.24	Low	.28	.28	5	6
	7-33	18-30	1.20-1.50	0.20-2.00	0.17-0.21	Low	.28	.32		
	33-45	10-27	1.20-1.45	0.60-6.00	0.10-0.20	Low	.28	.32		
	45-68	8-27	1.20-1.40	0.60-6.00	0.07-0.18	Low	.28	.32		
HoA:										
Hornell	0-9	18-27	1.10-1.40	0.60-2.00	0.16-0.21	Low	.43	.43	3	6
	9-24	35-60	1.20-1.50	0.01-0.20	0.11-0.13	Moderate	.28	.32		
	24-28	35-60	1.30-1.55	0.01-0.20	0.06-0.12	Moderate	.28	.32		
	28-32	---	---	0.00-0.20	---	---	---	---		
HoB:										
Hornell	0-9	18-27	1.10-1.40	0.60-2.00	0.16-0.21	Low	.43	.43	3	6
	9-31	35-60	1.20-1.50	0.01-0.20	0.11-0.13	Moderate	.28	.32		
	31-61	---	---	0.01-0.20	---	---	---	---		
	61-68	---	---	0.00-0.20	---	---	---	---		
KfA:										
Kingsville	0-8	2-12	1.20-1.50	6.00-20.00	0.09-0.12	Low	.17	.17	5	2
	8-30	2-12	1.20-1.50	6.00-20.00	0.07-0.12	Low	.17	.17		
	30-80	2-10	1.45-1.65	6.00-20.00	0.05-0.10	Low	.17	.20		
La:										
Landfills	---	---	---	---	---	---	---	---	-	---
MhA:										
Mill	0-11	15-27	1.30-1.50	0.60-2.00	0.16-0.20	Low	.32	.32	2	6
	11-19	15-35	1.45-1.70	0.20-0.60	0.13-0.17	Low	.43	.43		
	19-45	20-35	1.55-1.70	0.20-0.60	0.10-0.16	Moderate	.37	.43		
	45-80	15-32	1.55-1.85	0.06-0.20	0.10-0.14	Low	.37	.43		
MtA:										
Mitiwanga	0-11	15-26	1.30-1.45	0.60-2.00	0.17-0.21	Low	.32	.37	2	6
	11-30	24-35	1.30-1.60	0.60-2.00	0.13-0.17	Moderate	.32	.43		
	30-32	---	---	0.20-2.00	---	---	---	---		
MtB:										
Mitiwanga	0-13	15-26	1.30-1.45	0.60-2.00	0.17-0.21	Low	.32	.37	2	6
	13-31	24-35	1.30-1.60	0.60-2.00	0.13-0.17	Moderate	.32	.43		
	31-33	---	---	0.20-2.00	---	---	---	---		
OrA:										
Orrville	0-10	12-27	1.25-1.45	0.60-2.00	0.18-0.22	Low	.37	.37	5	6
	10-36	18-30	1.30-1.50	0.60-2.00	0.15-0.19	Low	.28	.37		
	36-60	10-25	1.20-1.40	0.60-6.00	0.08-0.15	Low	.28	.37		
OtA:										
Otego	0-9	5-18	1.15-1.40	0.60-2.00	0.18-0.21	Low	.49	.49	5	5
	9-28	5-18	1.15-1.40	0.60-2.00	0.17-0.19	Low	.64	.64		
	28-80	5-18	1.25-1.50	0.20-2.00	0.16-0.19	Low	.49	.64		
OuC:										
Otisville	0-12	1-10	1.10-1.40	6.00-20.00	0.09-0.12	Low	.17	.17	5	3
	12-34	1-5	1.25-1.55	6.00-20.00	0.02-0.05	Low	.17	.64		
	34-80	1-5	1.45-1.65	6.00-20.00	0.01-0.02	Low	.17	.55		
PaA:										
Painesville	0-9	3-15	1.30-1.50	2.00-6.00	0.10-0.14	Low	.24	.24	3	3
	9-30	5-18	1.50-1.60	0.60-6.00	0.08-0.19	Low	.24	.24		
	30-51	18-30	1.60-1.75	0.06-0.60	0.12-0.18	Low	.43	.49		
	51-80	18-30	1.60-1.75	0.06-0.60	0.12-0.18	Low	.43	.49		

Table 29.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
PbA:										
Painesville-----	0-9	3-15	1.30-1.50	2.00-6.00	0.10-0.14	Low	.24	.24	3	3
	9-30	5-18	1.50-1.60	0.60-6.00	0.08-0.19	Low	.24	.24		
	30-51	18-30	1.60-1.75	0.06-0.60	0.12-0.18	Low	.43	.49		
	51-80	18-30	1.60-1.75	0.06-0.60	0.12-0.18	Low	.43	.49		
Urban land------	---	---	---	---	---	---	---	---	-	---
PeC2:										
Pierpont--------	0-8	15-25	1.30-1.50	0.60-2.00	0.16-0.19	Low	.43	.43	4	6
	8-24	25-35	1.45-1.70	0.20-2.00	0.13-0.17	Low	.43	.43		
	24-40	27-35	1.60-1.90	0.01-0.20	0.09-0.13	Low	.43	.49		
	40-72	20-32	1.55-1.90	0.06-0.60	0.10-0.14	Low	.43	.49		
PeD:										
Pierpont--------	0-9	15-25	1.30-1.50	0.60-2.00	0.16-0.19	Low	.43	.43	4	6
	9-25	25-35	1.45-1.70	0.20-2.00	0.13-0.17	Low	.43	.49		
	25-40	27-35	1.60-1.90	0.01-0.20	0.09-0.13	Low	.43	.55		
	40-80	20-32	1.55-1.90	0.06-0.60	0.10-0.14	Low	.43	.55		
Pg:										
Pits, gravel----	0-80	1-4	---	6.00-20.00	0.01-0.02	---	---	---	-	8
Pk:										
Pits, quarries--	---	---	---	---	---	---	---	---	-	---
PrA:										
Platea----------	0-9	15-27	1.30-1.50	0.60-2.00	0.20-0.24	Low	.43	.43	3	6
	9-21	20-34	1.45-1.70	0.20-0.60	0.16-0.21	Low	.32	.49		
	21-61	20-35	1.60-1.90	0.01-0.06	0.08-0.12	Low	.43	.55		
	61-80	20-32	1.55-1.85	0.06-0.60	0.10-0.14	Low	.43	.55		
Darien----------	0-11	15-27	1.10-1.40	0.60-2.00	0.15-0.20	Low	.37	.37	5	6
	11-45	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Moderate	.24	.37		
	45-69	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Low	.24	.37		
	69-80	20-35	1.50-1.85	0.06-0.20	0.05-0.14	Low	.24	.49		
PrB:										
Platea----------	0-9	15-27	1.30-1.50	0.60-2.00	0.20-0.24	Low	.43	.43	3	6
	9-16	20-34	1.45-1.70	0.20-0.60	0.16-0.21	Low	.32	.49		
	16-45	20-35	1.60-1.90	0.01-0.06	0.08-0.12	Low	.43	.55		
	45-80	20-32	1.55-1.85	0.06-0.60	0.10-0.14	Low	.43	.55		
Darien----------	0-13	15-27	1.10-1.40	0.60-2.00	0.15-0.20	Low	.37	.37	5	6
	13-33	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Moderate	.24	.37		
	33-49	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Low	.24	.37		
	49-80	20-35	1.50-1.85	0.06-0.20	0.05-0.14	Low	.24	.49		
PrB2:										
Platea----------	0-9	15-27	1.30-1.50	0.60-2.00	0.20-0.24	Low	.43	.43	3	6
	9-16	20-34	1.45-1.70	0.20-0.60	0.16-0.21	Low	.32	.49		
	16-45	20-35	1.60-1.90	0.01-0.06	0.08-0.12	Low	.43	.55		
	45-80	20-32	1.55-1.85	0.06-0.60	0.10-0.14	Low	.43	.55		
Darien----------	0-4	15-27	1.10-1.40	0.60-2.00	0.15-0.20	Low	.37	.37	5	6
	4-29	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Moderate	.24	.37		
	29-44	20-35	1.50-1.75	0.20-0.60	0.09-0.16	Low	.24	.37		
	44-80	20-35	1.50-1.85	0.06-0.20	0.05-0.14	Low	.24	.49		

Table 29.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
PtB:										
Platea	0-9	15-27	1.30-1.50	0.60-2.00	0.20-0.24	Low	.43	.43	3	6
	9-16	20-34	1.45-1.70	0.20-0.60	0.16-0.21	Low	.32	.49		
	16-45	20-35	1.60-1.90	0.01-0.06	0.08-0.12	Low	.43	.55		
	45-80	20-32	1.55-1.85	0.06-0.60	0.10-0.14	Low	.43	.55		
Urban land	---	---	---	---	---	---	---	---	-	---
PtC:										
Platea	0-9	15-27	1.30-1.50	0.60-2.00	0.20-0.24	Low	.43	.43	3	6
	9-18	20-34	1.45-1.70	0.20-0.60	0.16-0.21	Low	.32	.49		
	18-29	20-35	1.60-1.90	0.01-0.06	0.08-0.12	Low	.43	.55		
	29-80	20-32	1.55-1.85	0.06-0.60	0.10-0.14	Low	.43	.55		
Urban land	---	---	---	---	---	---	---	---	-	---
RhA:										
Red Hook	0-9	8-18	1.10-1.40	0.60-2.00	0.14-0.19	Low	.32	.32	5	5
	9-31	5-18	1.25-1.55	0.60-2.00	0.04-0.17	Low	.24	.55		
	31-80	5-18	1.45-1.65	0.20-2.00	0.04-0.11	Low	.17	.43		
RhB:										
Red Hook	0-10	8-18	1.10-1.40	0.60-2.00	0.14-0.19	Low	.32	.32	5	5
	10-34	5-18	1.25-1.55	0.60-2.00	0.04-0.17	Low	.24	.55		
	34-80	5-18	1.45-1.65	0.20-2.00	0.04-0.11	Low	.17	.43		
Rw:										
Riverwash	---	---	---	---	---	---	---	---	-	---
SbA:										
Sebring	0-8	18-27	1.30-1.45	0.60-2.00	0.18-0.22	Low	.37	.37	5	6
	8-29	22-35	1.45-1.65	0.20-0.60	0.14-0.18	Moderate	.32	.37		
	29-50	22-35	1.45-1.65	0.20-0.60	0.14-0.18	Moderate	.32	.37		
	50-80	15-30	1.40-1.60	0.20-2.00	0.12-0.16	Moderate	.37	.37		
StA:										
Stanhope	0-5	10-25	1.20-1.40	0.60-2.00	0.15-0.23	Low	.43	.43	5	6
	5-40	18-35	1.20-1.45	0.20-2.00	0.18-0.23	Moderate	.32	.43		
	40-80	12-40	1.30-1.50	0.20-2.00	0.15-0.22	Moderate	.32	.43		
ToC:										
Towerville	0-5	15-27	1.10-1.40	0.60-2.00	0.12-0.19	Low	.37	.37	2	6
	5-14	18-35	1.20-1.50	0.60-2.00	0.11-0.18	Low	.28	.32		
	14-34	18-35	1.60-1.80	0.06-0.60	0.09-0.18	Low	.28	.32		
	34-40	---	---	0.00-0.06	---	---	---	---		
ToD:										
Towerville	0-5	15-27	1.10-1.40	0.60-2.00	0.12-0.19	Low	.37	.37	2	6
	5-22	18-35	1.20-1.50	0.60-2.00	0.11-0.18	Low	.28	.32		
	22-32	18-35	1.60-1.80	0.06-0.60	0.09-0.18	Low	.28	.32		
	32-35	---	---	0.00-0.06	---	---	---	---		
TyB:										
Tyner	0-12	3-8	1.40-1.55	6.00-20.00	0.10-0.12	Low	.17	.20	5	2
	12-36	3-8	1.45-1.60	6.00-20.00	0.09-0.11	Low	.17	.20		
	36-80	1-3	1.55-1.70	6.00-20.00	0.05-0.08	Low	.17	.24		
Otisville	0-10	1-10	1.10-1.40	6.00-20.00	0.09-0.12	Low	.10	.17	5	3
	10-13	1-10	1.10-1.40	6.00-20.00	0.09-0.12	Low	.17	.32		
	13-35	1-5	1.25-1.55	6.00-20.00	0.02-0.05	Low	.17	.64		
	35-80	1-5	1.45-1.65	6.00-20.00	0.01-0.02	Low	.17	.55		

Table 29.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Shrink-swell potential	Erosion factors			Wind erodibility group
							Kw	Kf	T	
	In	Pct	g/cc	In/hr	In/in					
Ud:										
Udorthents	---	---	---	---	---	---	---	---	-	---
Un:										
Urban land	---	---	---	---	---	---	---	---	-	---
UrB:										
Urban land	---	---	---	---	---	---	---	---	-	---
Elnora	0-8	2-10	1.20-1.50	2.00-6.00	0.08-0.16	Low	.17	.17	5	2
	8-21	2-5	1.20-1.50	6.00-20.00	0.06-0.08	Low	.17	.17		
	21-80	2-5	1.45-1.65	6.00-20.00	0.03-0.06	Low	.17	.17		
UtB:										
Urban land	---	---	---	---	---	---	---	---	-	---
Tyner	0-12	3-8	1.40-1.55	6.00-20.00	0.10-0.12	Low	.17	.20	5	2
	12-36	3-8	1.45-1.60	6.00-20.00	0.09-0.11	Low	.17	.20		
	36-80	1-3	1.55-1.70	6.00-20.00	0.05-0.08	Low	.17	.24		
Otisville	0-10	1-10	1.10-1.40	6.00-20.00	0.09-0.12	Low	.10	.17	5	3
	10-13	1-10	1.10-1.40	6.00-20.00	0.09-0.12	Low	.17	.32		
	13-35	1-5	1.25-1.55	6.00-20.00	0.02-0.05	Low	.17	.64		
	35-80	1-5	1.45-1.65	6.00-20.00	0.01-0.02	Low	.17	.55		
VeA:										
Venango	0-9	13-23	1.30-1.50	0.60-2.00	0.18-0.22	Low	.37	.43	4	6
	9-21	18-30	1.45-1.70	0.60-2.00	0.15-0.18	Low	.37	.49		
	21-46	18-27	1.60-1.88	0.01-0.20	0.06-0.09	Low	.37	.55		
	46-80	12-27	1.55-1.88	0.06-0.60	0.08-0.12	Low	.37	.55		
VeB:										
Venango	0-10	13-23	1.30-1.50	0.60-2.00	0.18-0.22	Low	.37	.43	4	6
	10-22	18-30	1.45-1.70	0.60-2.00	0.15-0.18	Low	.37	.49		
	22-38	18-27	1.60-1.88	0.01-0.20	0.06-0.09	Low	.37	.55		
	38-80	12-27	1.55-1.88	0.06-0.60	0.08-0.12	Low	.37	.55		
W:										
Water	---	---	---	---	---	---	---	---	-	---
WcA:										
Wick	0-8	12-35	1.20-1.60	0.60-2.00	0.18-0.20	Low	.43	.43	5	6
	8-36	20-35	1.30-1.60	0.20-2.00	0.14-0.20	Low	.43	.43		
	36-50	20-40	1.30-1.70	0.20-2.00	0.14-0.20	Moderate	.43	.43		
	50-53	5-26	1.30-1.60	2.00-6.00	0.06-0.19	Low	.24	.24		
	53-80	19-40	1.30-1.70	0.20-2.00	0.14-0.20	Moderate	.43	.43		
WeA:										
Willette	0-22	0-0	0.25-0.45	0.20-6.00	0.35-0.45	---	---	---	2	2
	22-80	35-60	1.40-1.65	0.06-0.20	0.12-0.16	High	---	---		

Table 30.—Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
Be:					
Beaches	---	---	---	---	---
BkA:					
Blakeslee	0-10	3.5-7.3	3.0-7.0	8.0-28	0
	10-38	3.5-6.0	0.4-2.5	7.0-18	0
	38-80	4.5-6.0	0.1-0.6	2.0-15	0
BkB:					
Blakeslee	0-5	3.5-7.3	3.0-7.0	8.0-28	0
	5-26	3.5-6.0	0.4-2.5	7.0-18	0
	26-39	3.5-5.5	0.1-0.6	2.0-15	0
	39-80	4.5-6.0	0.1-0.6	2.0-15	0
BkC:					
Blakeslee	0-10	3.5-7.3	3.0-7.0	8.0-28	0
	10-27	3.5-6.0	0.4-2.5	7.0-18	0
	27-35	3.5-5.5	0.1-0.6	2.0-15	0
	35-80	4.5-6.0	0.1-0.6	2.0-15	0
CaB:					
Cambridge	0-2	3.5-6.5	3.0-7.0	7.0-16	0
	2-25	3.5-6.0	0.3-3.0	5.0-12	0
	25-51	4.5-7.3	0.1-0.4	8.0-16	0
	51-72	4.5-8.4	0.1-0.3	7.0-14	0-10
CaC:					
Cambridge	0-10	3.5-6.5	3.0-7.0	7.0-16	0
	10-21	3.5-6.0	0.3-3.0	5.0-12	0
	21-36	4.5-7.3	0.1-0.4	8.0-16	0
	36-80	4.5-8.4	0.1-0.3	7.0-14	0-10
CaD:					
Cambridge	0-10	3.5-6.5	3.0-7.0	7.0-16	0
	10-25	3.5-6.0	0.3-3.0	5.0-12	0
	25-37	4.5-7.3	0.1-0.4	8.0-16	0
	37-80	4.5-8.4	0.1-0.3	7.0-14	0-10
CcA:					
Canadice	0-9	4.5-7.3	3.0-11	13-31	0
	9-45	4.5-7.8	0.2-1.0	17-31	0
	45-80	6.6-8.4	0.1-0.3	17-31	1-10
CdA:					
Caneadea	0-12	4.5-7.3	2.0-4.0	14-22	0
	12-52	4.5-8.4	0.2-1.0	16-30	0
	52-80	6.6-8.4	0.1-0.3	16-28	1-10
CdB:					
Caneadea	0-4	4.5-7.3	2.0-4.0	14-22	0
	4-60	4.5-8.4	0.2-1.0	16-30	0
	60-80	6.6-8.4	0.1-0.3	16-28	1-10
CeA:					
Caneadea	0-10	4.5-7.3	2.0-4.0	14-22	0
	10-51	4.5-8.4	0.2-1.0	16-30	0
	51-80	6.6-8.4	0.1-0.3	16-28	1-10
Canadice	0-10	4.5-7.3	3.0-11	13-31	0
	10-35	4.5-7.8	0.2-1.0	17-31	0
	35-80	6.6-8.4	0.1-0.3	17-31	1-10

Table 30.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
CfC2:					
Cardinal	0-5	4.5-6.0	1.0-3.0	8.0-19	0
	5-18	4.5-6.0	0.5-1.0	13-21	0
	18-57	5.1-7.3	0.2-0.5	17-31	0-5
	57-80	5.6-8.4	0.1-0.3	15-26	0-10
CfD2:					
Cardinal	0-12	4.5-6.0	1.0-3.0	8.0-19	0
	12-17	4.5-6.0	0.5-1.0	13-21	0
	17-58	5.1-7.3	0.2-0.5	17-31	0-5
	58-80	5.6-8.4	0.1-0.3	15-26	0-10
CfF:					
Cardinal	0-13	4.5-6.0	1.0-6.0	8.0-19	0
	13-22	4.5-6.0	0.5-1.0	13-21	0
	22-43	5.1-7.3	0.2-0.5	17-31	0-5
	43-80	5.6-8.4	0.1-0.3	15-26	0-10
CgA:					
Carlisle	0-80	4.5-7.8	70-99	150-230	0
CkA:					
Chenango	0-10	4.5-6.5	2.0-6.0	5.0-15	0
	10-29	4.5-7.3	0.2-1.0	3.0-10	0
	29-80	5.1-7.8	0.1-0.5	0.0-5.0	0
CkB:					
Chenango	0-11	4.5-6.5	2.0-6.0	5.0-15	0
	11-48	4.5-7.3	0.2-1.0	3.0-10	0
	48-80	5.1-7.8	0.1-0.5	0.0-5.0	0
CkC:					
Chenango	0-8	4.5-6.5	2.0-6.0	5.0-15	0
	8-31	4.5-7.3	0.2-1.0	3.0-10	0
	31-80	5.1-7.8	0.1-0.5	0.0-5.0	0
CkD:					
Chenango	0-3	4.5-6.0	2.0-6.0	5.0-15	0
	3-26	4.5-7.3	0.2-1.0	3.0-10	0
	26-80	5.1-7.8	0.1-0.5	0.0-5.0	0
CoB:					
Colonie	0-11	4.5-6.5	1.0-2.0	1.0-10	0
	11-46	4.5-6.5	0.1-0.5	0.5-2.0	0
	46-80	5.1-7.3	0.0-0.2	0.0-2.0	0
CoD:					
Colonie	0-10	4.5-6.5	1.0-2.0	1.0-10	0
	10-48	4.5-6.5	0.1-0.5	0.5-2.0	0
	48-80	5.1-7.3	0.0-0.2	0.0-2.0	0
CpB:					
Colonie	0-11	4.5-6.5	1.0-2.0	1.0-10	0
	11-46	4.5-6.5	0.1-0.5	0.5-2.0	0
	46-80	5.1-7.3	0.0-0.2	0.0-2.0	0
Urban land	---	---	---	---	---
CtA:					
Conneaut	0-9	4.5-7.3	1.0-5.0	8.0-22	0
	9-27	4.5-5.5	0.3-1.0	8.0-21	0
	27-52	6.1-7.3	0.2-0.5	8.0-21	0
	52-80	6.6-8.4	0.1-0.3	8.0-21	1-10

Table 30.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
CuA:					
Conneaut	0-9	4.5-7.3	1.0-5.0	8.0-22	0
	9-27	4.5-5.5	0.3-1.0	8.0-21	0
	27-52	6.1-7.3	0.2-0.5	8.0-21	0
	52-80	6.6-8.4	0.1-0.3	8.0-21	1-10
Urban land	---	---	---	---	---
DAM:					
Dam	---	---	---	---	---
DeC:					
Darien	0-14	5.1-7.3	3.0-8.0	10-26	0
	14-32	4.5-7.3	0.5-1.0	10-19	0
	32-46	6.6-8.4	0.2-0.5	10-18	0-10
	46-80	7.4-8.4	0.1-0.3	10-18	2-10
Platea	0-9	3.5-6.0	3.0-8.0	10-22	0
	9-18	3.5-6.0	0.5-1.0	10-18	0
	18-29	4.5-7.3	0.2-0.5	10-18	0
	29-80	5.6-8.4	0.1-0.3	10-17	0-10
DeC2:					
Darien	0-5	5.1-7.3	1.0-3.0	8.0-21	0
	5-27	4.5-7.3	0.5-1.0	10-19	0
	27-41	6.6-8.4	0.2-0.5	10-18	0-10
	41-80	7.4-8.4	0.1-0.3	10-18	2-10
Platea	0-9	3.5-6.0	1.0-3.0	8.0-17	0
	9-18	3.5-6.0	0.5-1.0	10-18	0
	18-29	4.5-7.3	0.2-0.5	10-18	0
	29-80	5.6-8.4	0.1-0.3	10-17	0-10
DhB:					
Darien	0-11	5.1-7.3	3.0-8.0	10-26	0
	11-36	4.5-7.3	0.5-1.0	10-19	0
	36-47	6.6-8.4	0.2-0.5	10-18	0-10
	47-80	7.4-8.4	0.1-0.3	10-18	2-10
Hornell	0-11	3.5-5.5	3.0-7.0	12-27	0
	11-33	4.5-5.5	0.2-1.0	17-31	0
	33-35	---	---	---	---
EnB:					
Elnora	0-8	3.5-6.5	2.0-6.0	3.0-11	0
	8-21	3.5-6.5	0.2-1.0	1.0-4.0	0
	21-80	5.1-7.3	0.1-0.3	1.0-3.0	0
FcA:					
Fitchville	0-7	4.5-6.0	2.0-5.0	14-22	0
	7-45	4.5-6.0	0.5-1.0	10-25	0
	45-53	5.6-7.3	0.2-0.5	10-25	0
	53-80	5.6-7.8	0.1-0.3	8.0-16	0-9
FcB:					
Fitchville	0-14	4.5-6.0	2.0-5.0	14-22	0
	14-51	4.5-6.0	0.5-1.0	10-25	0
	51-64	5.6-7.3	0.2-0.5	10-25	0
	64-80	5.6-7.8	0.1-0.3	8.0-16	0-9

Table 30.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
GaF:					
Gageville	0-10	4.5-5.5	1.0-5.0	6.0-15	0
	10-22	4.5-5.5	0.3-1.0	9.0-14	0
	22-56	5.1-7.8	0.2-0.5	11-18	0-10
	56-80	5.6-8.4	0.1-0.4	9.0-16	1-10
GfA:					
Glenford	0-10	4.5-7.3	1.0-5.0	10-18	0
	10-39	4.5-6.0	0.3-1.0	10-20	0
	39-54	4.5-7.3	0.2-0.5	10-20	0
	54-80	4.5-7.8	0.1-0.3	6.0-18	0
GfB:					
Glenford	0-9	4.5-6.0	1.0-5.0	10-18	0
	9-32	4.5-6.0	0.3-1.0	10-20	0
	32-45	4.5-7.3	0.2-0.5	10-20	0
	45-80	4.5-7.8	0.1-0.3	6.0-18	0
GfC:					
Glenford	0-11	4.5-6.0	1.0-5.0	10-18	0
	11-33	4.5-6.0	0.3-1.0	10-20	0
	33-44	4.5-7.3	0.2-0.5	10-20	0
	44-80	4.5-7.8	0.1-0.3	6.0-18	0
GfD:					
Glenford	0-12	4.5-6.0	1.0-5.0	10-18	0
	12-29	4.5-6.0	0.3-1.0	10-20	0
	29-39	4.5-7.3	0.2-0.5	10-20	0
	39-80	4.5-7.8	0.1-0.3	6.0-18	0
HaA:					
Harbor	0-13	4.5-6.0	2.0-6.0	8.0-20	0
	13-32	4.5-6.5	0.2-1.9	2.0-9.0	0
	32-37	5.1-7.3	0.2-0.5	6.0-15	0
	37-56	6.1-7.8	0.1-0.3	6.0-15	0-5
	56-80	6.6-8.4	0.1-0.3	6.0-15	0-10
HaC:					
Harbor	0-9	4.5-6.0	2.0-6.0	8.0-20	0
	9-26	4.5-6.5	0.2-1.9	2.0-9.0	0
	26-34	5.1-7.3	0.2-0.5	6.0-15	0
	34-63	6.1-7.8	0.1-0.3	6.0-15	0-5
	63-80	6.6-8.4	0.1-0.3	6.0-15	0-10
HbB:					
Harbor	0-13	4.5-6.0	2.0-6.0	8.0-20	0
	13-32	4.5-6.5	0.2-1.9	2.0-9.0	0
	32-37	5.1-7.3	0.2-0.5	6.0-15	0
	37-56	6.1-7.8	0.1-0.3	6.0-15	0-5
	56-80	6.6-8.4	0.1-0.3	6.0-15	0-10
Urban land	---	---	---	---	---
HmA:					
Holly	0-7	5.6-7.3	2.0-5.0	9.0-19	0
	7-33	5.1-7.3	0.3-1.0	9.0-16	0
	33-45	5.6-7.8	0.2-0.5	5.0-14	0
	45-68	5.1-7.8	0.1-0.3	4.0-14	0
HoA:					
Hornell	0-9	3.5-6.5	3.0-7.0	12-27	0
	9-24	4.5-5.5	0.2-1.0	17-31	0
	24-28	4.5-5.5	0.1-0.5	17-31	0
	28-32	---	---	---	---

Table 30.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
HoB:					
Hornell	0-9	3.5-6.5	3.0-7.0	12-27	0
	9-31	4.5-5.5	0.2-1.0	17-31	0
	31-61	---	---	---	---
	61-68	---	---	---	---
KfA:					
Kingsville	0-8	4.5-6.0	3.0-8.0	8.0-18	0
	8-30	4.5-7.3	0.3-2.0	1.0-9.0	0
	30-80	5.6-7.8	0.1-0.5	1.0-6.0	0-5
La:					
Landfills	---	---	---	---	---
MhA:					
Mill	0-11	4.5-6.0	3.0-5.0	15-22	0
	11-19	4.5-6.0	0.3-1.0	12-20	0
	19-45	5.1-7.8	0.2-0.5	12-18	0-10
	45-80	6.6-8.4	0.1-0.3	6.0-20	2-10
MtA:					
Mitiwanga	0-11	4.5-5.5	2.0-4.0	10-20	0
	11-30	4.5-6.0	0.2-1.0	12-18	0
	30-32	---	---	---	---
MtB:					
Mitiwanga	0-13	4.5-5.5	2.0-4.0	10-20	0
	13-31	4.5-6.0	0.2-1.0	12-18	0
	31-33	---	---	---	---
OrA:					
Orrville	0-10	5.1-6.5	2.0-4.0	8.0-18	0
	10-36	4.5-6.5	0.2-1.0	9.0-16	0
	36-60	5.1-7.3	0.1-0.3	5.0-13	0
OtA:					
Otego	0-9	4.5-6.5	2.0-4.0	4.0-13	0
	9-28	4.5-6.5	0.2-1.0	2.0-10	0
	28-80	4.5-7.3	0.1-0.5	2.0-10	0
OuC:					
Otisville	0-12	3.5-6.5	2.0-4.0	2.0-9.0	0
	12-34	3.5-6.5	0.2-1.0	0.0-4.0	0
	34-80	4.5-6.0	0.1-0.3	0.0-3.0	0
PaA:					
Painesville	0-9	4.5-6.0	2.0-5.0	3.0-15	0
	9-30	4.5-6.5	0.3-1.0	6.0-16	0
	30-51	5.6-7.8	0.2-0.5	8.0-21	0
	51-80	6.1-8.4	0.1-0.3	8.0-21	2-10
PbA:					
Painesville	0-9	4.5-6.0	2.0-5.0	3.0-15	0
	9-30	4.5-6.5	0.3-1.0	6.0-16	0
	30-51	5.6-7.8	0.2-0.5	8.0-21	0
	51-80	6.1-8.4	0.1-0.3	8.0-21	2-10
Urban land	---	---	---	---	---
PeC2:					
Pierpont	0-8	4.5-6.5	1.0-3.0	10-20	0
	8-24	4.5-5.5	0.3-1.0	12-20	0
	24-40	4.5-7.3	0.2-0.5	12-20	0
	40-72	6.1-8.4	0.1-0.3	8.0-20	2-10

Table 30.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
PeD:					
Pierpont	0-9	4.5-6.5	3.0-5.0	10-20	0
	9-25	4.5-5.5	0.3-1.0	12-20	0
	25-40	4.5-7.3	0.2-0.5	12-20	0
	40-80	6.1-8.4	0.1-0.3	8.0-20	2-10
Pg:					
Pits, gravel	0-80	---	0.0-0.1	---	---
Pk:					
Pits, quarries	---	---	---	---	---
PrA:					
Platea	0-9	3.5-6.0	3.0-8.0	10-22	0
	9-21	3.5-6.0	0.5-1.0	10-18	0
	21-61	4.5-7.3	0.2-0.5	10-18	0
	61-80	5.6-8.4	0.1-0.3	10-17	0-10
Darien	0-11	5.1-7.3	3.0-8.0	10-26	0
	11-45	4.5-7.3	0.5-1.0	10-19	0
	45-69	6.6-8.4	0.2-0.5	10-18	0-10
	69-80	6.6-8.4	0.1-0.3	10-18	2-10
PrB:					
Platea	0-9	3.5-6.0	3.0-8.0	10-22	0
	9-16	3.5-6.0	0.5-1.0	10-18	0
	16-45	4.5-7.3	0.2-0.5	10-18	0
	45-80	5.6-8.4	0.1-0.3	10-17	0-10
Darien	0-13	5.1-7.3	3.0-8.0	10-26	0
	13-33	4.5-7.3	0.5-1.0	10-19	0
	33-49	6.6-8.4	0.2-0.5	10-18	0-10
	49-80	6.6-8.4	0.1-0.3	10-18	2-10
PrB2:					
Platea	0-9	3.5-6.0	1.0-3.0	8.0-17	0
	9-16	3.5-6.0	0.5-1.0	10-18	0
	16-45	4.5-7.3	0.2-0.5	10-18	0
	45-80	5.6-8.4	0.1-0.3	10-17	0-10
Darien	0-4	5.1-7.3	1.0-3.0	8.0-21	0
	4-29	4.5-7.3	0.5-1.0	10-19	0
	29-44	6.6-8.4	0.2-0.5	10-18	0-10
	44-80	7.4-8.4	0.1-0.3	10-18	2-10
PtB:					
Platea	0-9	3.5-6.0	1.0-3.0	8.0-17	0
	9-16	3.5-6.0	0.5-1.0	10-18	0
	16-45	4.5-7.3	0.2-0.5	10-18	0
	45-80	5.6-8.4	0.1-0.3	10-17	0-10
Urban land	---	---	---	---	---
PtC:					
Platea	0-9	3.5-6.0	1.0-3.0	8.0-17	0
	9-18	3.5-6.0	0.5-1.0	10-18	0
	18-29	4.5-7.3	0.2-0.5	10-18	0
	29-80	5.6-8.4	0.1-0.3	10-17	0-10
Urban land	---	---	---	---	---

Table 30.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
RhA:					
Red Hook	0-9	4.5-6.5	3.0-8.0	7.0-17	0
	9-31	5.1-7.3	0.2-1.0	2.0-10	0
	31-80	5.6-7.8	0.1-0.3	2.0-10	0
RhB:					
Red Hook	0-10	4.5-6.5	3.0-12	7.0-17	0
	10-34	5.1-7.3	0.0-0.0	2.0-10	0
	34-80	5.6-7.8	0.0-0.0	2.0-10	0
Rw:					
Riverwash	---	---	---	---	---
SbA:					
Sebring	0-8	4.5-6.0	3.0-6.0	15-27	0
	8-29	4.5-6.5	0.3-1.0	12-22	0
	29-50	5.1-7.3	0.2-0.5	12-24	0
	50-80	6.1-8.4	0.1-0.3	10-20	0-9
StA:					
Stanhope	0-5	4.5-6.0	3.0-7.0	8.0-20	0
	5-40	4.5-6.0	0.2-2.6	9.0-21	0
	40-80	5.1-7.3	0.1-0.5	6.0-21	0
ToC:					
Towerville	0-5	4.5-6.0	3.0-8.0	20-30	0
	5-14	4.5-6.0	0.2-1.0	10-25	0
	14-34	4.5-6.5	0.1-0.3	10-25	0
	34-40	---	---	---	---
ToD:					
Towerville	0-5	4.5-6.0	3.0-8.0	20-30	0
	5-22	4.5-6.5	0.0-0.0	10-25	0
	22-32	4.5-6.5	0.0-0.0	10-25	0
	32-35	---	---	---	---
TyB:					
Tyner	0-12	4.5-7.3	0.5-1.0	1.0-6.0	0
	12-36	4.5-7.3	0.0-0.5	1.0-5.0	0
	36-80	5.1-7.3	0.0-0.2	1.0-3.0	0
Otisville	0-10	3.5-6.5	2.0-4.0	2.0-9.0	0
	10-13	3.5-6.5	0.3-1.0	0.0-4.0	0
	13-35	3.5-6.5	0.2-1.0	0.0-4.0	0
	35-80	4.5-6.0	0.1-0.3	0.0-3.0	0
Ud:					
Udorthents	---	---	---	---	---
Un:					
Urban land	---	---	---	---	---
UrB:					
Urban land	---	---	---	---	---
Elnora	0-8	3.5-6.5	2.0-6.0	3.0-11	0
	8-21	3.5-6.5	0.2-1.0	1.0-4.0	0
	21-80	5.1-7.3	0.1-0.3	1.0-3.0	0

Table 30.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	Pct
UtB:					
Urban land	---	---	---	---	---
Tyner	0-12	4.5-7.3	0.5-1.0	1.0-6.0	0
	12-36	4.5-7.3	0.0-0.5	1.0-5.0	0
	36-80	5.1-7.3	0.0-0.2	1.0-3.0	0
Otisville	0-10	3.5-6.5	2.0-4.0	2.0-9.0	0
	10-13	3.5-6.5	0.3-1.0	0.0-4.0	0
	13-35	3.5-6.5	0.2-1.0	0.0-4.0	0
	35-80	4.5-6.0	0.1-0.3	0.0-3.0	0
VeA:					
Venango	0-9	3.5-6.0	2.0-4.0	10-20	0
	9-21	3.5-6.0	0.3-0.5	10-18	0
	21-46	4.5-7.3	0.2-0.4	9.0-16	0
	46-80	6.6-8.4	0.1-0.3	5.0-17	0-10
VeB:					
Venango	0-10	3.5-6.0	2.0-4.0	10-20	0
	10-22	3.5-6.0	0.3-0.5	10-18	0
	22-38	4.5-7.3	0.2-0.4	9.0-16	0
	38-80	6.6-8.4	0.1-0.3	5.0-17	0-10
W:					
Water	---	---	---	---	---
WcA:					
Wick	0-8	4.5-6.5	3.0-8.5	9.0-23	0
	8-36	4.5-6.5	0.5-4.2	10-22	0
	36-50	5.1-7.3	0.5-2.0	10-22	0
	50-53	5.1-7.3	0.5-3.0	3.0-16	0
	53-80	5.1-7.3	1.0-4.0	11-24	0
WeA:					
Willette	0-22	5.1-7.3	60-99	120-180	0
	22-80	5.1-7.8	0.0-0.0	8.0-25	0-10

Table 31.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
Be:										
Beaches	---	Jan-Dec	---	---	---	---	---	---	---	None
BkA:										
Blakeslee	B	Jan-Apr	1.3-3.5	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.3-3.5	>6.0	Apparent	---	---	None	---	None
BkB:										
Blakeslee	B	Jan-Apr	1.3-3.5	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.3-3.5	>6.0	Apparent	---	---	None	---	None
BkC:										
Blakeslee	B	Jan-Apr	1.3-3.5	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.3-3.5	>6.0	Apparent	---	---	None	---	None
CaB:										
Cambridge	C	Jan-Apr	1.3-2.0	1.7-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.3-2.0	1.7-2.5	Perched	---	---	None	---	None
CaC:										
Cambridge	C	Jan-Apr	1.3-2.0	1.7-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.3-2.0	1.7-2.5	Perched	---	---	None	---	None
CaD:										
Cambridge	C	Jan-Apr	1.3-2.0	1.7-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.3-2.0	1.7-2.5	Perched	---	---	None	---	None
CcA:										
Canadice	D	Jan-Jun	0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
CdA:										
Caneadea	D	Jan-Jun	0.5-1.0	1.0-1.5	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.0-1.5	Perched	---	---	None	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
CdB:										
Caneadea	D	Jan-Jun	0.5-1.0	1.0-1.5	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.0-1.5	Perched	---	---	None	---	None
CeA:										
Caneadea	D	Jan-Jun	0.5-1.0	1.0-1.5	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.0-1.5	Perched	---	---	None	---	None
Canadice	D	Jan-Jun	0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
CfC2:										
Cardinal	C	Jan-Apr	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
CfD2:										
Cardinal	C	Jan-Apr	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
CfF:										
Cardinal	C	Jan-Apr	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
CgA:										
Carlisle	A/D	Jan-Dec	0	>6.0	Apparent	0.0-2.0	Very long	Frequent	---	None
CkA:										
Chenango	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
CkB:										
Chenango	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
CkC:										
Chenango	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
CkD:										
Chenango	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
CoB:										
Colonie	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
CoD:										
Colonie	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
CpB:										
Colonie	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Urban land	---	Jan-Dec	---	---	---	---	---	---	---	None
CtA:										
Conneaut	C	Jan-Jun	0.5-1.0	1.3-3.0	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.3-3.0	Perched	---	---	None	---	None
CuA:										
Conneaut	C	Jan-Jun	0.5-1.0	1.3-3.0	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.3-3.0	Perched	---	---	None	---	None
Urban land	---	Jan-Dec	---	---	---	---	---	---	---	None
DeC:										
Darien	C	Jan-Jun	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
Platea	C	Jan-Jun	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
DeC2:										
Darien	C	Jan-Jun	0.2-0.6	3.3-4.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.2-0.6	3.3-4.2	Perched	---	---	None	---	None
Platea	C	Jan-Jun	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
DhB:										
Darien	C	Jan-Jun	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
Hornell	D	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
EnB:										
Elnora----------	B	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
FcA:										
Fitchville------	C	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None
FcB:										
Fitchville------	C	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None
GaF:										
Gageville-------	C	Jan-Apr	1.3-3.5	2.9-5.0	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.3-3.5	2.9-5.0	Perched	---	---	None	---	None
GfA:										
Glenford--------	C	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
GfB:										
Glenford--------	C	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
GfC:										
Glenford--------	C	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
GfD:										
Glenford--------	C	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
HaA:										
Harbor----------	C	Jan-Apr	1.0-2.0	1.7-3.3	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.7-3.3	Perched	---	---	None	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
HaC:										
Harbor	C	Jan-Apr	1.0-2.0	1.7-3.3	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.7-3.3	Perched	---	---	None	---	None
HbB:										
Harbor	C	Jan-Apr	1.0-2.0	1.7-3.3	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.7-3.3	Perched	---	---	None	---	None
Urban land	---	Jan-Dec	---	---	---	---	---	---	---	None
HmA:										
Holly	B/D	Jan-May	0.0-0.5	>6.0	Apparent	---	---	None	Long	Frequent
		Jun	0.0-0.5	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct	0.0-0.5	>6.0	Apparent	---	---	None	---	None
		Nov-Dec	0.0-0.5	>6.0	Apparent	---	---	None	Long	Frequent
HoA:										
Hornell	D	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None
HoB:										
Hornell	D	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None
KfA:										
Kingsville	A/D	Jan-Dec	0	>6.0	Apparent	0.0-2.0	Brief	Frequent	---	None
La:										
Landfills	---	Jan-Dec	---	---	---	---	---	---	---	None
MhA:										
Mill	D	Jan-Jun	0.0-0.5	3.3-5.5	Perched	0.0-0.5	Brief	Frequent	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.0-0.5	3.3-5.5	Perched	0.0-0.5	Brief	Frequent	---	None
MtA:										
Mitiwanga	C	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
MtB:										
Mitiwanga-------	C	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None
OrA:										
Orrville--------	C	Jan-May	0.5-1.0	>6.0	Apparent	---	---	None	Brief	Frequent
		Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Nov-Dec	0.5-1.0	>6.0	Apparent	---	---	None	Brief	Frequent
OtA:										
Otego-----------	B	Jan-Apr	1.3-2.0	>6.0	Apparent	---	---	None	Brief	Frequent
		May-Oct	---	---	---	---	---	None	---	None
		Nov	1.3-2.0	>6.0	Apparent	---	---	None	---	None
		Dec	1.3-2.0	>6.0	Apparent	---	---	None	Brief	Frequent
OuC:										
Otisville-------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
PaA:										
Painesville-----	C	Jan-Jun	0.5-1.0	2.3-4.0	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	2.3-4.0	Perched	---	---	None	---	None
PbA:										
Painesville-----	C	Jan-Jun	0.5-1.0	2.3-4.0	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	2.3-4.0	Perched	---	---	None	---	None
Urban land------	---	Jan-Dec	---	---	---	---	---	---	---	None
PeC2:										
Pierpont--------	C	Jan-Apr	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
PeD:										
Pierpont--------	C	Jan-Apr	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	1.5-2.5	Perched	---	---	None	---	None
Pg:										
Pits, gravel----	A	Jan-Dec	---	---	---	---	---	---	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
Pk:										
Pits, quarries--	---	Jan-Dec	---	---	---	---	---	---	---	None
PrA:										
Platea----------	C	Jan-Jun	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
Darien----------	C	Jan-Jun	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
PrB:										
Platea----------	C	Jan-Jun	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
Darien----------	C	Jan-Jun	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	3.3-4.2	Perched	---	---	None	---	None
PrB2:										
Platea----------	C	Jan-Jun	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
Darien----------	C	Jan-Jun	0.2-0.6	3.3-4.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.2-0.6	3.3-4.2	Perched	---	---	None	---	None
PtB:										
Platea----------	C	Jan-Jun	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
Urban land------	---	Jan-Dec	---	---	---	---	---	---	---	None
PtC:										
Platea----------	C	Jan-Jun	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.2-2.2	Perched	---	---	None	---	None
Urban land------	---	Jan-Dec	---	---	---	---	---	---	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
RhA:										
Red Hook--------	C	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None
RhB:										
Red Hook--------	C	Jan-Jun	0.5-1.0	>6.0	Apparent	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	>6.0	Apparent	---	---	None	---	None
Rw:										
Riverwash-------	---	Jan-Dec	---	---	---	---	---	---	Long	Very frequent
SbA:										
Sebring---------	B/D	Jan-Jun	0.0-0.5	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.0-0.5	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	None
StA:										
Stanhope--------	C	Jan-Jun	0.0-0.5	>6.0	Apparent	---	---	None	Brief	Frequent
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct	0.0-0.5	>6.0	Apparent	---	---	None	---	None
		Nov-Dec	0.0-0.5	>6.0	Apparent	---	---	None	Brief	Frequent
ToC:										
Towerville------	B	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
ToD:										
Towerville------	B	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
TyB:										
Tyner-----------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Otisville-------	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Ud:										
Udorthents------	---	Jan-Dec	---	---	---	---	---	---	---	None
Un:										
Urban land------	---	Jan-Dec	---	---	---	---	---	---	---	None

Table 31.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table			Ponding			Flooding	
			Upper limit	Lower limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
UrB:										
Urban land	---	Jan-Dec	---	---	---	---	---	---	---	None
Elnora	B	Jan-Apr	1.0-2.0	>6.0	Apparent	---	---	None	---	None
		May-Oct	---	---	---	---	---	None	---	None
		Nov-Dec	1.0-2.0	>6.0	Apparent	---	---	None	---	None
UtB:										
Urban land	---	Jan-Dec	---	---	---	---	---	---	---	None
Tyner	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
Otisville	A	Jan-Dec	>6.0	>6.0	---	---	---	None	---	None
VeA:										
Venango	C	Jan-Jun	0.5-1.0	1.5-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.5-2.2	Perched	---	---	None	---	None
VeB:										
Venango	C	Jan-Jun	0.5-1.0	1.5-2.2	Perched	---	---	None	---	None
		Jul-Sep	---	---	---	---	---	None	---	None
		Oct-Dec	0.5-1.0	1.5-2.2	Perched	---	---	None	---	None
WcA:										
Wick	D	Jan-Jun	0	>6.0	Apparent	---	---	None	Long	Frequent
		Jul-Sep	0	>6.0	Apparent	---	---	None	---	None
		Oct-Dec	0	>6.0	Apparent	---	---	None	Long	Frequent
WeA:										
Willette	A/D	Jan-Dec	0	>6.0	Apparent	0.0-2.0	Very long	Frequent	---	None

Table 32.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Be:									
Beaches	---	---	---	---	---	---	---	---	---
BkA:									
Blakeslee	---	> 80	---	---	---	0	Moderate	High	High.
BkB:									
Blakeslee	---	> 80	---	---	---	0	Moderate	High	High.
BkC:									
Blakeslee	---	> 80	---	---	---	0	Moderate	High	High.
CaB:									
Cambridge	Fragipan	20- 30	6-36	Weakly cemented	---	0	Moderate	Moderate	High.
CaC:									
Cambridge	Fragipan	20- 30	6-36	Weakly cemented	---	0	Moderate	Moderate	High.
CaD:									
Cambridge	Fragipan	20- 30	6-36	Weakly cemented	---	0	Moderate	Moderate	High.
CcA:									
Canadice	---	> 80	---	---	---	0	High	High	High.
CdA:									
Caneadea	---	> 80	---	---	---	0	High	High	High.
CdB:									
Caneadea	---	> 80	---	---	---	0	High	High	High.
CeA:									
Caneadea	---	> 80	---	---	---	0	High	High	High.
Canadice	---	> 80	---	---	---	0	High	High	High.
CfC2:									
Cardinal	---	> 80	---	---	---	0	High	High	High.
CfD2:									
Cardinal	---	> 80	---	---	---	0	High	High	High.
CfF:									
Cardinal	---	> 80	---	---	---	0	High	High	High.
CgA:									
Carlisle	---	> 80	---	---	---	43-54	High	High	High.

Table 32.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
CkA:									
Chenango	---	> 80	---	---	---	0	Moderate	Low	High.
CkB:									
Chenango	---	> 80	---	---	---	0	Moderate	Low	High.
CkC:									
Chenango	---	> 80	---	---	---	0	Moderate	Low	High.
CkD:									
Chenango	---	> 80	---	---	---	0	Moderate	Low	High.
CoB:									
Colonie	---	> 80	---	---	---	0	Low	Low	High.
CoD:									
Colonie	---	> 80	---	---	---	0	Low	Low	High.
CpB:									
Colonie	---	> 80	---	---	---	0	Low	Low	High.
Urban land	---	---	---	---	---	---	---	---	---
CtA:									
Conneaut	---	> 80	---	---	---	0	High	High	High.
CuA:									
Conneaut	---	> 80	---	---	---	0	High	High	High.
Urban land	---	---	---	---	---	---	---	---	---
DAM:									
Dam	---	---	---	---		---	---	---	---
DeC:									
Darien	---	> 80	---	---	---	0	High	High	Moderate.
Platea	Fragipan	14- 26	10-40	Weakly cemented	---	0	High	High	High.
DeC2:									
Darien	---	> 80	---	---	---	0	High	High	Moderate.
Platea	Fragipan	14- 26	10-40	Weakly cemented	---	0	High	High	High.

Table 32.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
DhB:									
Darien	---	> 80	---	---	---	0	High	High	Moderate.
Hornell	Bedrock (lithic)	20- 40	---	Very weakly cemented	---	0	High	High	High.
EnB:									
Elnora	---	> 80	---	---	---	0	Low	Low	High.
FcA:									
Fitchville	---	> 80	---	---	---	0	High	High	High.
FcB:									
Fitchville	---	> 80	---	---	---	0	High	High	High.
GaF:									
Gageville	---	> 80	---	---	---	0	Moderate	Moderate	High.
GfA:									
Glenford	---	> 80	---	---	---	0	High	Moderate	High.
GfB:									
Glenford	---	> 80	---	---	---	0	High	Moderate	High.
GfC:									
Glenford	---	> 80	---	---	---	0	High	Moderate	High.
GfD:									
Glenford	---	> 80	---	---	---	0	High	Moderate	High.
HaA:									
Harbor	---	> 80	---	---	---	0	Moderate	Moderate	High.
HaC:									
Harbor	---	> 80	---	---	---	0	Moderate	Moderate	High.
HbB:									
Harbor	---	> 80	---	---	---	0	Moderate	Moderate	High.
Urban land	---	---	---	---	---	---	---	---	---
HmA:									
Holly	---	> 80	---	---		0	High	High	Moderate.
HoA:									
Hornell	Bedrock (paralithic)	20- 40	---	Very weakly cemented	---	0	High	High	High.

Table 32.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
HoB:									
Hornell	Bedrock (paralithic) Bedrock (lithic)	20- 40	---	Very weakly cemented Weakly cemented	---	0	High	High	High.
KfA:									
Kingsville	---	> 80	---	---	---	0	Moderate	High	High.
La:									
Landfills	---	---	---	---	---	---	---	---	---
MhA:									
Mill	---	> 80	---	---	---	0	High	High	High.
MtA:									
Mitiwanga	Bedrock (lithic)	20- 40	---	Strongly cemented	---	0	High	High	High.
MtB:									
Mitiwanga	Bedrock (lithic)	20- 40	---	Strongly cemented	---	0	High	High	High.
OrA:									
Orrville	---	> 80	---	---		0	High	High	Moderate.
OtA:									
Otego	---	> 80	---	---	---	0	High	Moderate	Low.
OuC:									
Otisville	---	> 80	---	---	---	0	Low	Low	High.
PaA:									
Painesville	---	> 80	---	---	---	0	High	High	High.
PbA:									
Painesville	---	> 80	---	---	---	0	High	High	High.
Urban land	---	---	---	---	---	---	---	---	---
PeC2:									
Pierpont	Fragipan	18- 30	15-30	Extremely weakly cemented		0	High	High	High.
PeD:									
Pierpont	Fragipan	18- 30	15-30	Extremely weakly cemented	---	0	High	High	High.
Pg:									
Pits, gravel	---	---	---	---	---	---	None	---	---

Table 32.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
Pk:									
Pits, quarries	---	---	---	---	---	---	---	---	---
PrA:									
Platea	Fragipan	14- 26	10-40	Weakly cemented	---	0	High	High	High.
Darien	---	> 80	---	---	---	0	High	High	Moderate.
PrB:									
Platea	Fragipan	14- 26	10-40	Weakly cemented	---	0	High	High	High.
Darien	---	> 80	---	---	---	0	High	High	Moderate.
PrB2:									
Platea	Fragipan	14- 26	10-40	Weakly cemented	---	0	High	High	High.
Darien	---	> 80	---	---	---	0	High	High	Moderate.
PtB:									
Platea	Fragipan	14- 26	10-40	Weakly cemented	---	0	High	High	High.
Urban land	---	---	---	---	---	---	---	---	---
PtC:									
Platea	Fragipan	14- 26	10-40	Very weakly cemented	---	0	High	High	High.
Urban land	---	---	---	---	---	---	---	---	---
RhA:									
Red Hook	---	> 80	---	---	---	0	High	Moderate	High.
RhB:									
Red Hook	---	> 80	---	---	---	0	High	Moderate	High.
Rw:									
Riverwash	---	---	---	---	---	---	---	---	---
SbA:									
Sebring	---	> 80	---	---	---	0	High	High	High.
StA:									
Stanhope	---	> 80	---	---	---	0	High	High	High.
ToC:									
Towerville	Bedrock (paralithic)	20- 40	---	Very weakly cemented	---	0	Moderate	Moderate	High.

Table 32.—Soil Features—Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
ToD:									
Towerville	Bedrock (paralithic)	20- 40	---	Very weakly cemented	---	0	Moderate	Moderate	High.
TyB:									
Tyner	---	> 80	---	---	---	0	Low	Low	High.
Otisville	---	> 80	---	---	---	0	Low	Low	High.
Ud:									
Udorthents	---	---	---	---	---	---	---	---	---
Un:									
Urban land	---	---	---	---	---	---	---	---	---
UrB:									
Urban land	---	---	---	---	---	---	---	---	---
Elnora	---	> 80	---	---	---	0	Low	Low	High.
UtB:									
Urban land	---	---	---	---	---	---	---	---	---
Tyner	---	> 80	---	---	---	0	Low	Low	High.
Otisville	---	> 80	---	---	---	0	Low	Low	High.
VeA:									
Venango	Fragipan	18- 26	14-40	Weakly cemented	---	0	High	High	High.
VeB:									
Venango	Fragipan	18- 26	14-40	Weakly cemented	---	0	High	High	High.
W:									
Water	---	---	---	---		---	---	---	---
WcA:									
Wick	---	> 80	---	---	---	0	High	High	High.
WeA:									
Willette	---	> 80	---	---	---	25-32	High	High	Low.

Table 33a.—Classification of the Soils
(Sixth Edition of Keys to Soil Taxonomy)

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Blakeslee	Fine-loamy, mixed, mesic Oxyaquic Hapludalfs
Cambridge	Coarse-loamy, mixed, mesic Oxyaquic Fragiudalfs
Canadice	Fine, illitic, mesic Typic Endoaqualfs
Caneadea	Fine, illitic, mesic Aeric Epiaqualfs
Cardinal	Fine, mixed, mesic Aquic Hapludalfs
Carlisle	Euic, mesic Typic Medisaprists
Chenango	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Colonie	Mixed, mesic Argic Udipsamments
Conneaut	Fine-silty, mixed, nonacid, mesic Aeric Epiaquepts
Darien	Fine-loamy, mixed, mesic Aeric Epiaqualfs
Elnora	Mixed, mesic Aquic Udipsamments
Fitchville	Fine-silty, mixed, mesic Aeric Endoaqualfs
Gageville	Fine-loamy, mixed, mesic Oxyaquic Hapludalfs
Glenford	Fine-silty, mixed, mesic Aquic Hapludalfs
Harbor	Coarse-loamy, mixed, mesic Aquic Hapludalfs
Holly	Fine-loamy, mixed, nonacid, mesic Typic Fluvaquents
Hornell	Fine, illitic, acid, mesic Aeric Endoaquepts
Kingsville	Mixed, mesic Mollic Psammaquents
Mill	Fine-loamy, mixed, nonacid, mesic Aeric Epiaquepts
Mitiwanga	Fine-loamy, mixed, mesic Aeric Endoaqualfs
Orrville	Fine-loamy, mixed, nonacid, mesic Aeric Fluvaquents
Otego	Coarse-silty, mixed, mesic Fluvaquentic Dystrochrepts
Otisville	Sandy-skeletal, mixed, mesic Typic Udorthents
Painesville	Coarse-loamy, mixed, nonacid, mesic Aeric Epiaquepts
Pierpont	Fine-silty, mixed, mesic Aqueptic Fragiudalfs
Platea	Fine-silty, mixed, mesic Aeric Fragiaqualfs
Red Hook	Coarse-loamy, mixed, nonacid, mesic Aeric Endoaquepts
*Sebring	Fine-silty, mixed, mesic Typic Endoaqualfs
Stanhope	Fine-silty, mixed, nonacid, mesic Aeric Endoaquepts
Towerville	Fine-loamy, mixed, mesic Aquic Dystrochrepts
Tyner	Mixed, mesic Typic Udipsamments
Venango	Fine-loamy, mixed, mesic Aeric Fragiaqualfs
Wick	Fine-silty, mixed, nonacid, mesic Typic Endoaquepts
Willette	Clayey, illitic, euic, mesic Terric Medisaprists

Table 33b.—Classification of the Soils
(Eighth Edition of Keys to Soil Taxonomy)

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Blakeslee	Fine-loamy, mixed, active, mesic Oxyaquic Hapludalfs
Cambridge	Coarse-loamy, mixed, superactive, mesic Oxyaquic Fragiudalfs
Canadice	Fine, illitic, mesic Typic Endoaqualfs
Caneadea	Fine, illitic, mesic Aeric Epiaqualfs
Cardinal	Fine, mixed, active, mesic Aquic Hapludalfs
Carlisle	Euic, mesic Typic Haplosaprists
Chenango	Loamy-skeletal, mixed, superactive, mesic Typic Dystrudepts
Colonie	Mixed, mesic Lamellic Udipsamments
Conneaut	Fine-silty, mixed, active, nonacid, mesic Aeric Epiaquepts
Darien	Fine-loamy, mixed, active, mesic Aeric Epiaqualfs
Elnora	Mixed, mesic Aquic Udipsamments
Fitchville	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Gageville	Fine-loamy, mixed, semiactive, mesic Oxyaquic Hapludalfs
Glenford	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Harbor	Coarse-loamy, mixed, active, mesic Aquic Hapludalfs
Holly	Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Hornell	Fine, illitic, acid, mesic Aeric Endoaquepts
Kingsville	Mixed, mesic Mollic Psammaquents
Mill	Fine-loamy, mixed, superactive, nonacid, mesic Aeric Epiaquepts
Mitiwanga	Fine-loamy, mixed, active, mesic Aeric Endoaqualfs
Orrville	Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Otego	Coarse-silty, mixed, superactive, mesic Fluvaquentic Dystrudepts
Otisville	Sandy-skeletal, mixed, mesic Typic Udorthents
Painesville	Coarse-loamy, mixed, active, nonacid, mesic Aeric Epiaquepts
Pierpont	Fine-silty, mixed, active, mesic Aquic Fragiudalfs
Platea	Fine-silty, mixed, active, mesic Aeric Fragiaqualfs
Red Hook	Coarse-loamy, mixed, superactive, nonacid, mesic Aeric Endoaquepts
*Sebring	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Stanhope	Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts
Towerville	Fine-loamy, mixed, superactive, mesic Aquic Dystrudepts
Tyner	Mixed, mesic Typic Udipsamments
Venango	Fine-loamy, mixed, active, mesic Aeric Fragiaqualfs
Wick	Fine-silty, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts
Willette	Clayey, illitic, euic, mesic Terric Haplosaprists

Interpretive Groups

Interpretive groups are specified land use and specific management groupings that are assigned to soil areas because combinations of soils have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. These groups allow users of soil surveys to plan reasonable alternatives for the use and management of soils.

The table “Interpretive Groups” lists land capability classification, pasture and hayland suitability groups, prime farmland classification, and hydric classifications.

The *land capability classification groups* soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deterioration over a long period of time. The table shows the land capability class and subclass for each of the soils in Ashtabula County. Additional information on land capability classification is provided under the heading "Land Capability Classification" in the "Crops and Pasture" section of this survey.

Pasture and hayland suitability groups are composed of soil map units having similar potentials and limitations for forage production. These groups simplify soils information and provide soil and plant science information for planning purposes. The table shows the pasture and hayland suitability group for each of the soils in Ashtabula County. Additional information on pasture and hayland suitability groups is provided under the heading "Pasture and Hayland Suitability Groups" in the "Crops and Pasture" section of this survey.

Prime farmland classification identifies the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops. This identification is useful in the management and maintenance of the resource base that supports the productive capacity of Ohio agriculture. The table shows which of the map units in Ashtabula County are prime farmland. Additional information on prime farmland is provided under the heading "Prime Farmland" in the “Important Farmland” section of this survey.

The identification of *hydric soils* and information about hydrophytic vegetation and wetland hydrology are used to define wetlands. The table shows which of the soils in Ashtabula County are hydric. Additional information on hydric soils is provided under the heading "Hydric Soils" elsewhere in this survey.

Interpretive Groups

(Dashes indicate that the soil was not assigned to the interpretive group.)

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Hydric
Be: Beaches	---	Not rated	Not prime farmland	Unranked
BkA: Blakeslee	1	A-1	All areas are prime farmland	No
BkB: Blakeslee	2e	B-1	All areas are prime farmland	No
BkC: Blakeslee	3e	B-1	Farmland of unique importance	No
CaB: Cambridge	2e	F-3	All areas are prime farmland	No
CaC: Cambridge	3e	F-3	Farmland of local importance	No
CaD: Cambridge	4e	F-3	Not prime farmland	No
CcA: Canadice	4w	C-2	Farmland of local importance	Yes
CdA: Caneadea	3w	C-2	Farmland of local importance	No
CdB: Caneadea	3w	C-2	Farmland of local importance	No
CeA: Caneadea Canadice	3w	C-2 C-2	Farmland of local importance	No Yes
CfC2: Cardinal	4e	A-6	Farmland of local importance	No
CfD2: Cardinal	6e	A-6	Not prime farmland	No
CfF: Cardinal	7e	A-3	Not prime farmland	No
CgA: Carlisle	5w	D-1	Not prime farmland	Yes

Interpretive Groups—Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Hydric
CkA:	2s		All areas are prime farmland	
Chenango		B-1		No
CkB:	2s		All areas are prime farmland	
Chenango		B-1		No
CkC:	3e		Farmland of unique importance	
Chenango		B-1		No
CkD:	4e		Farmland of unique importance	
Chenango		B-1		No
CoB:	2s		Farmland of unique importance	
Colonie		B-1		No
CoD:	4e		Farmland of unique importance	
Colonie		B-1		No
CpB:	---		Not prime farmland	
Colonie		Not rated		No
Urban Land		Not rated		Unranked
CtA:	3w		Prime farmland if drained	
Conneaut		C-1		No
CuA:	---		Not prime farmland	
Conneaut		Not rated		No
Urban Land		Not rated		Unranked
DAM:	---		Not prime farmland	
Dam		Not rated		Unranked
DeC:	3e		Farmland of unique importance	
Darien		C-1		No
Platea		C-2		No
DeC2:	3e		Farmland of unique importance	
Darien		C-1		No
Platea		C-2		No
DhB:	3w		Prime farmland if drained	
Darien		C-1		No
Hornell		C-2		No
EnB:	2w		Farmland of unique importance	
Elnora		B-1		No

Interpretive Groups—Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Hydric
FcA:	2w		Prime farmland if drained	
Fitchville		C-1		No
FcB:	2e		Prime farmland if drained	
Fitchville		C-1		No
GaF:	7e		Not prime farmland	
Gageville		A-3		No
GfA:	1		All areas are prime farmland	
Glenford		A-6		No
GfB:	2e		All areas are prime farmland	
Glenford		A-6		No
GfC:	3e		Farmland of local importance	
Glenford		A-6		No
GfD:	4e		Farmland of local importance	
Glenford		A-6		No
HaA:	2s		All areas are prime farmland	
Harbor		A-1		No
HaC:	3e		Farmland of local importance	
Harbor		A-1		No
HbB:	---		Not prime farmland	
Harbor		Not rated		No
Urban Land		Not rated		Unranked
HmA:	3w		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	
Holly		C-3		Yes
HoA:	3w		Prime farmland if drained	
Hornell		C-2		No
HoB:	3w		Prime farmland if drained	
Hornell		C-2		No
KfA:	5w		Farmland of unique importance	
Kingsville		C-1		Yes

Interpretive Groups—Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Hydric
La: Landfills	---	Not rated	Not prime farmland	Unranked
MhA: Mill	4w	C-1	Prime farmland if drained	Yes
MtA: Mitiwanga	2w	C-1	Prime farmland if drained	No
MtB: Mitiwanga	2e	C-1	Prime farmland if drained	No
OrA: Orrville	2w	C-3	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	No
OtA: Otego	2w	A-5	Prime farmland if protected from flooding or not frequently flooded during the growing season	No
OuC: Otisville	4s	B-1	Not prime farmland	No
PaA: Painesville	2w	C-1	Prime farmland if drained	No
PbA: Painesville Urban Land	---	Not rated Not rated	Not prime farmland	No Unranked
PeC2: Pierpont	3e	F-3	Farmland of local importance	No
PeD: Pierpont	4e	F-3	Farmland of local importance	No
Pg: Pits, Gravel	---	Not rated	Not prime farmland	Unranked
Pk: Pits, Quarries	---	Not rated	Not prime farmland	Unranked
PrA: Platea Darien	3w	C-2 C-1	Farmland of unique importance	No No

Interpretive Groups—Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Hydric
PrB:	3e		Farmland of unique importance	
Platea		C-2		No
Darien		C-1		No
PrB2:	3e		Farmland of unique importance	
Platea		C-2		No
Darien		C-1		No
PtB:	---		Not prime farmland	
Platea		Not rated		No
Urban Land		Not rated		Unranked
PtC:	---		Not prime farmland	
Platea		Not rated		No
Urban Land		Not rated		Unranked
RhA:	3w		Prime farmland if drained	
Red Hook		C-1		No
RhB:	3w		Prime farmland if drained	
Red Hook		C-1		No
Rw:	---		Not prime farmland	
Riverwash		Not rated		Unranked
SbA:	3w		Prime farmland if drained	
Sebring		C-1		Yes
StA:	3w		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	
Stanhope		C-3		Yes
ToC:	3e		Not prime farmland	
Towerville		F-1		No
ToD:	4e		Not prime farmland	
Towerville		F-1		No
TyB:	3s		Farmland of unique importance	
Tyner		B-1		No
Otisville		B-1		No
Ud:	---		Not prime farmland	
Udorthents		Not rated		Unranked

Interpretive Groups—Continued

Map symbol and soil name	Land capability classification	Pasture and hayland suitability group	Prime farmland	Hydric
Un:----------	---		Not prime farmland	
Urban Land		Not rated		Unranked
UrB:----------	---		Not prime farmland	
Urban Land		Not rated		Unranked
Elnora		Not rated		No
UtB:----------	---		Not prime farmland	
Urban Land		Not rated		Unranked
Tyner		Not rated		No
Otisville		Not rated		No
VeA:----------	3w		Prime farmland if drained	
Venango		C-1		No
VeB:----------	3w		Prime farmland if drained	
Venango		C-1		No
W:----------	---		Not prime farmland	
Water		Not rated		Unranked
WcA:----------	4w		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	
Wick		C-3		Yes
WeA:----------	5w		Not prime farmland	
Willette		D-1		Yes

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.